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RUBBER MEN FOR PREPAREDNESS.

NO one in the United States wants war. As a nation, we no more desire war than we desire earthquakes or the bubonic plague. And that is the reason why many well-balanced people urge that we get so ready for war that no one will feel at all disposed to start one with us. It is quite widely believed that at the present time we are rather remote from such a condition, and hence the universal chorus—barring the ex-Secretary of State and a few of his friends—for preparedness.

The first practical suggestions for general national defense contributed from any industrial quarter have come from large rubber companies, several of which have recently voted to encourage enlistment in the National Guard, on the part of their factory workmen, to give full pay to any who shall enlist, during the time they are engaged in their military duties, and not to deduct this time from their usual vacations.

It is probably safe to say that there are 75,000 rubber workers of military age—a very substantial body from which the militia of the Eastern and Middle States—where most of the rubber mills are located—may be recruited. This willingness of the rubber companies to finance the patriotism of their employees—if it may be so expressed—is highly important in itself, and especially as an example which is likely to be followed by other large employers of labor. It may not solve the whole question of national defense, but it certainly is a long step in that direction.

THE WAR AND RUBBER TIRES.

IT seems to be generally believed that there has been a great increase in the sale of American rubber tires abroad since the outbreak of hostilities. This belief is based on the theory that as the motor car has largely supplanted all other means of military transportation alike in the moving of troops and of army supplies, and as no motor car can operate unless adequately tired, there must have been a great demand for both solid and pneumatic tires and of necessity much of this demand must have looked to the United States for its supply.

It is true that the sale of American tires abroad has increased since the beginning of the war, but not to the extent generally supposed. Recent government reports covering our export trade give an accurate idea of the extent of our tire sales abroad. Comparing the ten months ending April 30—which covers the period from the beginning of the war—with the same period of the year earlier, we get the following results: For the ten months ending with last April the value of rubber tires for motor cars sent abroad amounted to $3,552,651, as compared with $2,683,344 the year before. To these figures must be added the value of the tires that were sent abroad on cars during that period. For the ten months ending last April the number of commercial vehicles exported was 8,580, as compared with 595 the year before. Assuming the tire equipment to average $300 a car, the respective tire values for the two periods would be $2,574,000 for the ten months of war, as compared with $178,500 for the ten months of peace. The export of passenger cars in the meantime had decreased, being 14,641 for the latter period as compared with 23,167 for the former period. Assuming the tire equipment of these cars to be an average of $100, and adding these values to those already given above, we have as a total valuation of the tire exports for the ten months ending last April, $7,590,751, as compared with $5,178,544 for the ten months ending with April, 1914.

In other words, the total increase of tire exports for the first ten months of the war, compared with the preceding year, measured in value, amounted to only $2,412,207, an item so small when compared with our total yearly tire production that any one of the larger companies could have taken care of it all without the slightest interference with its general routine.

THE BRIGHTER SIDE OF THE AMAZON.

ALL men who are concerned in a large way with the welfare of the rubber industry feel a profound interest in the country of the Amazon. They have heard with genuine sympathy the stories of distress that have come from that section since rubber began to sell at the

lower levels. Accordingly, they will read with pleasure the letter which appears in a later part of this issue from a correspondent in Manaos, who paints a far brighter picture of that part of the world than we have been accustomed lately to see. He is a man who has been familiar for many years with the rubber industry of the Amazon and speaks from a thorough knowledge of the subject. This note of optimism where of late there has been so much gloom is genuinely cheering.

He admits at once the financial hardships through which that section has been passing, but he states—which is undoubtedly the truth—that the chorus of complaint has been greatly swelled by those who hoped in this way to secure a larger volume of assistance from the federal government. But while one part of the Amazon has been dolorously clamoring for help, there has been another element, consisting of men of a more robust mold, which has accepted the situation as it is, conceded all the discouragements and sought to work out some way of salvation. The first step in this highly needed reform movement has been a candid acknowledgment of the wild wastefulness of the old methods pursued in the non-competitive days, when plantation rivalry was looked upon as an idle dream. These Brazilians who are seeking to rescue the Amazon from the unhappy state in which it has fallen have begun by trimming away the parasites, of which there were many. They have succeeded in getting a substantial reduction in the excessive charges hitherto prevailing in river transportation. They have concentrated their work on the lower sections of the Amazon affluents, where the work can be prosecuted most economically. They have persuaded the *seringueiro* that it is possible for him to work more than a hundred days a year—which was formerly his limit—and they have prevailed upon him to plant his own garden, instead of looking to Manaos and Para for all of his supplies.

The result has been most encouraging. The statistics quoted by our correspondent show that, while the shipment of supplies from Manaos into the rubber-gathering country has materially decreased, the receipts of the best variety of rubber have actually increased. His figures are interesting. The shipments of merchandise from that port to the interior in 1914 were 21,000 tons, or 35 per cent., less than during 1912; but instead of resulting in a material falling off in rubber production, the *Hevea* receipts for the nine months ending with March 31 last showed an increase of 220 tons over those of the same period a year earlier. As viewed by our correspondent, the outlook for the Amazon country is by no means dark. He concludes his letter as follows: "As there is a vast forestal reserve of *Hevea* at hand all over the country—only 5 to 10 per cent. of which is being explored at present—there is no reason why Amazonian production of Upriver Fine should not go on increasing, no matter what the price of plantation rubber will be."

No one who has the rubber industry at heart would want to see South America eliminated as a source of supply. If the Amazon should cease to gather rubber and any untoward fate befall the Eastern plantations, the manufacturer would surely be in a sad estate. He needs two strings to his bow. Besides, a proper amount of competition is decidedly wholesome. Moreover, to allow the rich rubber resources of the Amazon to fall into neglect would be a churlish flouting of Nature, who has strewn the banks of the great river so liberally with the indispensable *Hevea Brasiliensis*.

TWO PAN-AMERICAN SUGGESTIONS.

THE Pan-American Conference held in Washington late in May was prolific in suggestions, but two of them stand out quite conspicuously—for two totally different reasons; one being "daring and brilliant," as the National City Bank of New York remarks in its June bulletin, while the other must claim distinction solely by reason of its plain, simple, homely common sense.

The first was the suggestion of Secretary Bryan that the United States should issue 3 per cent. bonds to be exchanged for 4 per cent. bonds to be issued by the Central and South American republics; the difference of 1 per cent. in favor of the United States being turned into a sinking fund which, in something like 50 years, would be sufficient to pay up the indebtedness of the southern republics. Here was something quite new, not to say startling, in the ordinarily conservative world of finance.

The other suggestion came from a member of the New York City administration and was to the effect that the exhibits of the southern republics now forming a part of the Panama-Pacific Exposition at San Francisco should on the termination of that enterprise be divided up and sent on a circuit through the larger cities. These two suggestions may properly be mentioned in the same paragraph because they are so totally unlike. The bank bulletin mentioned above goes on to remark of Mr. Bryan's suggestion that "it appeals to the imagination." There is no doubt about that; but financing that appeals to the imagination is not generally the kind that appeals to that prudence and sound judgment on which all permanently successful financing must be based. It is, however, an interesting, not to say piquant, idea that Mr. Bryan has projected into Pan-American discussions and is bound to provoke a deal of comment, especially if the next session of Congress should give it serious consideration.

The second suggestion, for the retention in this country of the South American exhibits and their proper display in one city after another, may be quite commonplace but is eminently sensible and practicable. If a thoroughly

adequate presentation of all the varied resources of the Amazon Valley, including its potentialities in the way of rubber plantations, could be brought before the attention of the American people, and particularly of the leaders in commercial activity, it should certainly result in a great awakening of interest in that most wonderful part of the globe.

THE COLLECTOR ON THE WATCH.

THE attempt to export rubber concealed in other materials, which recently resulted in the conviction and punishment of five men in a New York court, and the dispute over the character of the cargo on the "Lusitania," have determined the Collector of New York to scrutinize all goods delivered to the steamships sailing from that port. This does not mean that he will attempt to examine every case and package—that would require a dozen regiments of inspectors; it simply means that all merchandise delivered on New York docks for export which is of uncertain source or of suspicious aspect will be subjected to a rigid examination. The signal failure of the two attempts to smuggle rubber out of the country—first, concealed in barrels of resin, and in the second place hidden in bales of cotton—is likely to discourage any further ambitions in this direction that sympathizers with any of the belligerents might entertain.

CONSULS TO GIVE SOME GENUINE INFORMATION.

THE value of consular reports in the past has depended largely upon the consul's particular fitness or unfitness for his job. Consular plums have fallen to all sorts and conditions of men. Some have gone to trained newspaper men who have sent home reports full of genuine information. Others have gone to fictionists who have sought consular service for travel and foreign color, whose communications are quite likely to be fair reading but rather lean in valuable commercial facts. Then again, many consular posts—perhaps the greater part of them—have been handed over to plain political hacks without news sense or descriptive faculty, whose reports have neither conveyed information nor excited interest.

But Secretary Redfield hopes to change all this. The Department of Commerce, over which he presides, is preparing blanks for consuls to fill out which will tend to standardize consular reports and will enable our government to secure just the information that American business men require. It is the intention of the department to prepare a list of questions that shall so thoroughly cover the ground that the manufacturers and exporters of this country can tell at once whether a certain foreign market possesses any interest for them. For instance, a consul will no longer advise the department that a certain merchant in Melbourne wants to purchase American rubber goods, but he will specifically state what goods the merchant wants, the kind and quality and volume, and the price he is willing to pay. This will enable the exporter to make a definite proffer at once without the long delay involved in the interchange of correspondence over a wide distance.

The great extent and marked success of the foreign commerce of England and Germany are attributable in no small measure to the intelligent assistance of these two governments. Washington has always been interested, of course, in the growth of American exports, but this interest hitherto has not invariably assumed a highly efficient form. This new departure of the Department of Commerce is a hopeful sign.

SHALL WE HAVE A UNIVERSITY OF TIRE REPAIRING?

IN a general way educators may be divided into two classes, the culturists and the practicalists. The first cling tenaciously to the Latin and Greek and calculus of the fathers—anything to exercise the mind; while the latter contend that while the mind is about it it might as well exercise itself on something it can use. Those advocates of the useful in education can take profound satisfaction in the schools now being established in different parts of the country to teach the complicated art of tire repairing. Here is education that is practical to the core.

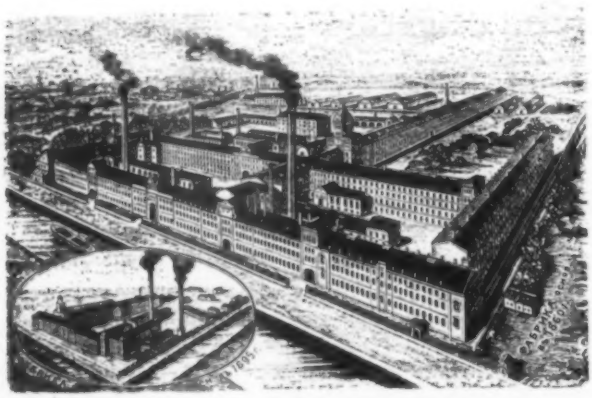
There are, let us say, 10,000,000 tires in use at the present time in this country. Probably 60 per cent. of them, or, roughly, 6,000,000 tires, will need some sort of repairing during the year. Assuming that a competent workman—taking injured tires as they come, mild cases and serious cases together—could comfortably take care of 10 tires a day, or 3,000 in the course of a year, there would be work enough to keep 2,000 repair school graduates constantly busy. That's a very respectable student body—quite equal to that of several of the best known American universities. As these are distinctively days of standardization, why not bring all these ambitious scholars together in an institution of adequate size and ample facilities, situated in some locality where tire consumers consume tires in the greatest volume—near New York, for instance, or Chicago—with power to confer on its graduates the degree of D. P. S.—Doctors of Pneumatic Surgery?

The Rubber Trade in Russia.

PROBABLY one of the first duties that will come before the United States Senate at its next session will be the ratification of a new commercial treaty with Russia, to fill the void left by the abrogation during the late days of the Taft administration of the former commercial treaties existing between that country and this. Russia has a very respectable foreign trade. It amounted during the first ten months of 1913 to $1,113,349,000, $520,855,000 representing imports during that period and $592,494,000 representing exports. Both of these figures fell off somewhat during the last months of 1914, very naturally, owing to the outbreak of hostilities. But undoubtedly after the cessation of the war Russia's foreign trade will resume its former volume; the exports may show a falling off for a time, but the imports will doubtless materially increase.

But perhaps more interesting than the volume of Russia's entire foreign commerce are the figures that represent that country's imports from Germany, for naturally a very considerable part of this trade will, for some years to come, at least, go to other nations. In 1913 Russia bought over $209,000,000 worth of various products from Germany. But while these figures appeal to American manufacturers as a whole, the particular department of Russia's commerce that interests the American rubber manufacturer is the extent of the rubber industry in the Czar's dominion and the field that country offers for the marketing of American goods.

The extent of Russia's rubber trade for the last normal year, 1913, measured in the value of the product, was $56,000,000. The manufacture of rubber articles had been increasing with considerable rapidity for a number of years. The output of shoes, for instance, had doubled in ten years, and the production of tires had increased rapidly with each year. It is probable that the Russian factories, the two large ones—the Russian-American and the Prowodnik—together with the half dozen smaller



FACTORY OF THE RUSSIAN-AMERICAN INDIA RUBBER CO., "TREUGOLNIK," PETROGRAD, RUSSIA.

ТОВАРИЩЕСТВА РОССІЙСКО-АМЕРИКАНСКОЙ РЕЗИНОВОЙ МАНУФАКТУРЫ

(English letter equivalents for the above: TOWARITCHESTWA, company; ROSSIISKO-AMERIKANSKOI, Russian-American; RESINOWOI, india rubber; MANUFAKTURY, manufactory.)

plants, were producing not far from 100,000 pairs of rubber shoes a day; and the manufacturers not only enjoyed a practical monopoly of the home market in this respect but were building up a substantial export business, largely to Germany, but including also, in more limited quantities, Norway, Sweden and Denmark, while some shipments were made to China, Australia and South America, particularly Patagonia.

Though the making of automobile tires is a comparatviely new industry, exports of these goods were being made at the outbreak of the war to a great many foreign countries, a late pamphlet of the Prowodnik company showing sales offices not only in all the countries of Europe but in New York and San Francisco, Montreal and Toronto, and in Argentina, Brazil, Egypt, India and South Africa. In addition to shoes and tires Russia enjoyed a very considerable export business in one other article of rubber manufacture, namely, rubber sponges, in the making of which it has particularly excelled.

TRADE MARK FOR RUSSIAN-AMERICAN RUBBER SHOES.

The war has had much the same effect on the rubber industry in Russia as in England—that is, it has vastly increased the demand, by reason of government orders, for shoes, surgical appliances and tires, while naturally the output of certain other lines used in ordinary times of peace has been much curtailed. But the chief effect has been the decrease in the normal supply of crude rubber. Late advices indicate that prices of crude rubber in Russia are now 100 per cent. higher than they were last July, while the prices of rubber manufactured goods have risen from 20 to 25 per cent.

Owing to government assistance, and especially to the levying of rather onerous duties on all imports of rubber manufactured goods—duties amounting to $21.39 per 100 pounds on tires and $17.11 per 100 pounds on other goods—the Russian companies have been able very largely to monopolize their home trade. Some importations, however, from other countries have been made, chiefly from Germany. The imports of rubber manufactured goods into Russia from the United States have never reached a large figure; the maximum, during the last ten years, expressed in value, was reached in the year 1907-1908, namely, $26,932. The imports remained about the same for the next six years, in the year 1912-1913 being $26,909, and in the following year—ending with June 30, 1914—they dropped to $12,133. It might be said in passing that in all probability Russian imports of United States goods in reality rather exceeded the figures given, for some goods were sent by way of England and Germany and Norway, and were credited to the countries from which they were re-shipped.

Germany, on the other hand, has done quite an export business in rubber goods with Russia for some years, the value of these exports—exclusive of crude and waste rubber, gutta percha, balata and substitutes—in 1913 amounting to $2,337,500. In order to show just what goods America has sold to Russia in the last ten years, a classified table is given; and in order further to show what market the Germans were able to find in Russia

a tabulation is given, in considerable detail, of the German goods imported into Russia in the year 1913, as follows:

EXPORTS OF AMERICAN RUBBER GOODS TO RUSSIA.

FISCAL YEAR ENDING JUNE 30.

	Belting, Packing, and Hose.	Boots and Shoes.		Tires.		Other Goods.	Total
	Value.	Pairs.	Value.	For Automobiles. Value.	All Other. Value.	Value.	Value.
1904-1905....	$1,149	132	$121	.....	.....	.....	$1,270
1905-1906....	2,093	2,500	8,040	.....	.....	$4,189	14,322
1906-1907....	618	1,557	797	.....	.....	12,174	13,589
1907-1908....	11,636	5,257	3,755	.....	.....	11,541	26,932
1908-1909....	1,289	1,713	1,231	.....	.....	20,677	23,197
1909-1910....	1,934	4,025	2,427	.....	.....	20,806	25,167
1910-1911....	6,391	7,249	8,034	$655	$764	7,028	22,872
1911-1912....	7,023	605	510	.....	608	15,974	24,115
1912-1913....	14,801	114	62	729	4,831	6,486	26,909
1913-1914....	7,448	359	279	1,168	522	2,696	12,113

RUBBER AND RUBBER GOODS EXPORTED BY GERMANY TO RUSSIA DURING 1913.

	Tons.	Value.
Crude rubber	532.2	$680,000
Gutta percha	29.3	17,750
Balata	4.3	5,500
Rubber waste	120.6	61,000
Substitutes	16.5	4,750
American cloth	11.9	14,750
Rubber collars	19.4	35,500
Waterproof cloth	1.5	7,750
Dissolved rubber	27.3	1,750
Soft rubber, gutta percha paper	17.7	26,500
Cut rubber sheets, unvulcanized	3.7	10,500
Automobile pneumatics (inner tubes)	28.2	97,500
Cycle pneumatics (tubes)	20.3	58,000
Hose	15.6	26,000
Belting	31.3	37,000
Tarpaulins	0.3	250
Rubber thread	25.6	94,250
Rubber shoes	0.3	500
Solid rubber tires	50.2	117,250
Automobile tire casings	185.9	490,000
Cycle tire casings	50.8	89,000
Rubber sheet, with textile composition	186.2	413,750
Bottle rings, etc	33.7	22,000
Elastic ribbons	37.6	103,500
Printers' sheets	0.7	1,000
Rubber for dentistry	1.0	7,000
Hard rubber pressed in discs, bars, etc	19.8	27,500
Tubes from hard rubber	1.9	3,000
Other hard rubber goods	86.9	211,750
Surgical instruments	108.0	441,500
	1,668.7	$3,106,500

While our own sales of rubber manufactured goods to Russia have been so small as to be practically negligible, as indicated by the table given above, it cannot be said, on the other hand, that our purchases from Russia have ever reached any considerable figure. Beginning ten years ago with a value of about $33,000, they dropped steadily for the next five years, being in 1909-1910 less than $8,000. But from that point they have increased with considerable rapidity, reaching for the year ending June 30, 1914, a value close to $150,000. The brief table which follows shows the value of these imports for each year, all the imports being grouped under the general head of rubber manufactured goods, without any detailed classification. Undoubtedly, however, by far the greater part of these imports during the last two or three years has consisted of tires.

FACTORY OF THE RUSSIAN-FRENCH INDIA-RUBBER GUTTA PERCHA & TELEGRAPH WORKS, "PROWODNIK," AT RIGA, RUSSIA.

VALUE OF IMPORTS INTO THE UNITED STATES OF RUBBER MANUFACTURES FROM RUSSIA.

FOR FISCAL YEAR ENDING JUNE 30.

1904-1905	$32,990	1909-1910	$7,801
1905-1906	22,449	1910-1911	15,170
1906-1907	21,361	1911-1912	37,259
1907-1908	12,768	1912-1913	35,270
1908-1909	19,666	1913-1914	149,826

It cannot be said that the rubber industry in Russia is a thing of mushroom growth, for as a matter of fact it dates back to the very beginning of rubber manufacture anywhere in the world.

"PROWODNIK" TIRE.

The first rubber mill was built in Russia soon after 1830, which shows that the industry took root in that country at about the same time as in the United States and England. The first factory was opened in St. Petersburg, by Henry Kirstein.

Fourteen years later, in 1844, another factory was built, and by 1845 the combined output of these two factories had reached a value of 90,000 rubles ($46,350). In the early '50s two more manufacturing companies entered the field, but during the next three or four years the industry appeared to languish, until in 1857 the government, recognizing the importance of rubber manufactures for the general welfare of the people, put on a protective tariff and encouraged the Russian industry.

In 1860 the Russian-American India Rubber Co., which, by the way, had neither Russians nor Americans among its directors or stockholders—all being German—was established in St. Petersburg, and it soon absorbed the smaller companies then in existence. Its chief output—a very natural one considering climatic conditions in that wintry empire—consisted of rubber shoes. The production in that year amounted to 220,000 pairs. Ten years later the product had increased to almost 1,800,000 pairs, and in 1886 it had reached 3,300,000 pairs. Singularly, very few boots were called for, notwithstanding the tendency to deep snows for which Russia is famous; the daily ticket on boots often not exceeding 15 or 20 pairs. By the time the Russian-American company had completed its first thirty years, it had become the largest rubber manufacturing company in the world. It had nearly 3,000 employees, of whom about one-half were women. The production of rubber shoes had reached nearly 5,000,000

pairs, and the value of the total annual product exceeded $7,000,000.

An American who visited that plant in 1895 wrote a letter to THE INDIA RUBBER WORLD—which appeared in the February number of that year—in which he expressed his surprise and admiration at the extent of this great plant. He wrote: "In their plant they have two buildings 1,225 feet long and with right angles with this another one 800 feet long. Each of these is 65 feet wide and four stories high. A very simple calculation shows in these buildings alone a floor space of a little over 19 acres." He then went on to describe various other buildings, such as boiler houses, pumping stations and electric light plants, making all told a group of structures that covered a large area of ground and was most imposing in its size. He was further impressed with the very low wages paid the operatives, on the one hand, and on the other the paternal care with which they were looked after by the management, nurseries being provided for the young children of the women operatives, physicians being in constant attendance upon the employees, with adequate hospital facilities for those who needed unusual care, and a "rest house" for convalescents. Furthermore, there were large caldrons of tea constantly brewing, which was served without stint or limit to all who wanted it. There was, moreover, a pension fund to care for those temporarily incapacitated or who after long years of service had been retired from active work. It might be said in passing, however, that all this attention to the welfare of the employees did not constitute a particularly heavy drain on the resources of the company, because the yearly dividends at that time ran quite uniformly from 50 to 70 per cent.

This company acquired an international reputation many years ago by reason of the liberality with which it exhibited at various world fairs. At the World's Fair held in Chicago in 1893 the most notable foreign exhibit of india rubber was that of the Russian-American company. A series of large showcases displayed a great variety of rubber footwear. Some specimens, quite unknown in America, had fur linings, to meet the colder conditions prevailing in Russia. But in general style and trimness the footwear did not compare favorably with that of American manufacture. This exhibit covered a floor area of about 10,000 square feet and, in addition to the footwear already mentioned, included rubber clothing, belting and hose.

LARGE ATOMIZER FOR HOSPITAL USE.

It also had a display at the Paris exposition in 1900 which attracted universal attention. The company's exhibits occupied an entire building, or rather, more properly, a pavilion constructed expressly for this purpose. In addition to a fine array of the company's products there was a reproduction of a rubber gatherer's camp in the Amazonian forest, showing the gathering of the latex from the wild trees.

It is not to be assumed, however, that the Russian-American company was permitted to monopolize the field. Other companies entered the domain of rubber manufacture, and conspicuous among them the Prowodnik company, founded at Riga, in 1888. The full name of this company as rendered in English is the Russian-French-India Rubber, Gutta Percha & Telegraph Works, Prowodnik, Riga, and as rendered in French and German, it is longer yet, but it is always referred to simply as the "Prowodnik"—a name used on its trade mark, for which the English synonym is "the leader." This company was chartered with a capital of 700,000 rubles, and began active operations the year after it was chartered. Its business was prosperous from the beginning, and in twenty years its net profits had reached nearly 2,000,000 rubles, or close to $1,000,000 a year. Its products cover a wide range, including soft rubber and hard rubber goods and articles of gutta percha, besides asbestos and linoleum goods. In rubber, its product ranges through the whole field from tires, clothing and footwear to pencil erasers.

RUSSIAN RUBBER DIVING SUIT.

Some conception of the present size of the Prowodnik company may be obtained from its latest statistics. Its paid up capital and reserve amount to £4,230,000; its annual business to £7,000,000; its workmen and officials—according to a late circular—constitute an army of 18,000 people, and its factory is run by engines aggregating 20,000 horse-power.

The Prowodnik company, like the Russian-American company, has always been keenly alive to the welfare of its employees, furnishing them when sick with free medical attendance and free medicines, and supplying them with hospital beds for the more severe cases. Some years ago it built a number of comfortable houses near the factory which are rented to the workmen at a moderate rental.

Like the Russian-American company, also, it has cut something of a figure at international expositions, its display at the Paris exposition of 1900 being particularly notable. It showed there not only the ordinary rubbers familiar to Americans, but rubber footwear in blue, green, yellow and other colors.

This company has established an international reputation for its automobile tires. The English correspondent of this paper included in his letter of December, 1913, the following paragraph: "The Prowodnik motor tire, which is characterized by its peculiar brownish color, appears to be very popular and to be selling well against its rivals, despite the fact that the covers cost about £2 more than those of well-known makes longer established." And it is true of American cities as of English cities, that one does not have to go far to discover cars equipped with these Russian-made tires. The Russian Tyre Sales Co. was incorporated under the laws of New York in July, 1912, for the purpose of distributing these tires, with salesrooms in New York City. This company was succeeded in January, 1914, by the Columb Tyre Import Co., located in the auto. and tire section on upper Broadway.

In the summer of 1908, there was created quite a commotion in the European rubber trade by the report that the Russian

companies had consolidated through the purchase on the part of the Russian-American Co., of the controlling interest in several smaller companies and half of the capital stock of the Prowodnik company, but it subsequently appeared there was no merger in the sense of lost identity, but simply a merger in the sense of a mutual understanding and a general community of interest, including the Russian-American company, the Prowodnik and two

SOLDIER'S RUBBER SLEEPING BAG.

smaller concerns, namely—C. Weyerbusch & Co., of Moscow, and the firm of Leopold Neuscheller & Co. The object of this merger was the elimination of wasteful competition.

As far back as 30 years ago the Russians began to find an export market for their shoes. Their shipments to foreign countries amounted in 1888 to 355,000 pairs; in 1895 to 2,700,000 pairs, and a few years later reached 3,222,000 pairs; almost the entire volume, or considerably over 90 per cent., of these exports going to Germany. Possibly this does not seem like a very large figure, but it is very much larger than the volume of American rubber footwear exports in any single year.

The industry, however, was not confined exclusively to shoes, by any means, as by the year 1890 the product of the Russian factories included clothing, hose, packing, belts, and other mechanical goods, surgical rubber goods, sponges, molded goods, toys, insulated wire and other articles in which rubber constitutes a large or a principal part, the machinery for which was obtained partly from England and partly from the United States, the Farrel Foundry & Machine Co., of Ansonia, Connecticut, having been called on for many mixing and other mills for Russian plants.

The manufacture of automobile tires has progressed steadily in Russia during the last ten years. The home consumption of pneumatic tires is not large as compared with America, as the number of automobiles in Russia is still comparatively small, but there has been a constantly increasing demand for solid tires for horse-drawn vehicles, more of these being used in Russia, probably, than anywhere else in the world.

NURSE'S RUBBER APRON.

During the last four or five years, and especially since the outbreak of the war, Russia has devoted quite a little energy to the construction of dirigibles and aeroplanes. The Russian government owned fourteen dirigibles at the time the Germans started to invade its borders. Early in September last the war department announced that it had decided to order additional dirigibles and over 300 aeroplanes. The larger part of this order had to be filled outside of the country, but some of the balloons and a number of the aeroplanes have been constructed in Russia.

In a general way it may be stated that the growth of the rubber industry in Russia during the last twenty-five years has shown a constant increase. In 1891 Russia consumed ten million pounds of rubber; in 1898 the volume had increased to sixteen million pounds, valued at six million dollars. During the next two years there was something of a recession in the volume consumed, although the value rose to ten million dollars, but by 1906 the volume again exceeded sixteen million pounds, and has since increased quite uniformly, being 20,000,000 pounds in 1912, nearly 29,000,000 pounds in 1913 and 24,000,000 pounds in 1914—notwithtsanding the outbreak of the war and the partial shutting off of supplies.

While the importations into the United States of manufactured rubber goods from Russia have never been large, our

HARD RUBBER INK WELL.

RUBBER COVERED KNAPSACK.

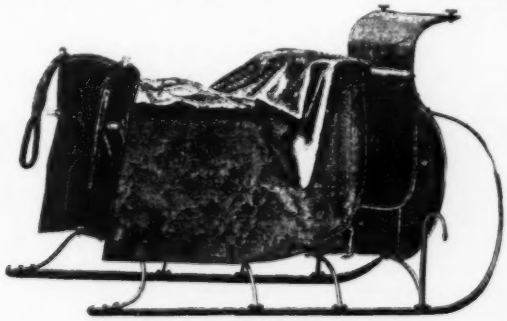
RUBBER ERASER.

importation of rubber scrap has been of considerable volume for many years. The following table shows the amount and value of these importations during the last ten years:

IMPORTS OF RUBBER SCRAP INTO THE UNITED STATES FROM RUSSIA.

	Pounds.	Value.
1904-1905	6,788,582	$401,843
1905-1906	7,891,040	485,942
1906-1907	7,766,304	678,462
1907-1908	4,694,731	427,662
1908-1909	3,299,367	274,864
1909-1910	8,880,562	792,438
1910-1911	7,119,625	638,367
1911-1912	5,220,921	404,159
1912-1913	7,468,274	619,594
1913-1914	5,018,555	453,522

Both the large Russian rubber companies, the Russian-American at St. Petersburg and the Prowodnik at Riga, have adequate equipments for reclaiming rubber. As far back as 1899 the Russian-American company sent the Birmingham Iron Foundry, of Derby, Connecticut, an order for reclaiming ma-



RUBBER LAP ROBE.

chinery amounting to 100 tons in weight, including grinders, sheeters, crackers, vulcanizers and blowers, while the Prowodnik plant is capable of producing from 40 to 50 tons of reclaimed rubber a day.

What the Rubber Chemists Are Doing.

A STUDY OF SOME RECENT METHODS FOR THE DETERMINATION OF TOTAL SULPHUR IN RUBBER. Under this title in "Technologic Papers of the Bureau of Standards, No. 45," J. B. Tuttle and A. Isaacs review and compare the various methods for the dtermination of total sulphur as given by well-known rubber chemists, discussing the results and outlining the method adopted by the Bureau of Standards. Eight methods were compared. Of these two were by direct solution, three were by direct fusion, two by solution and subsequent fusion and one special method by acetone extraction. The tabulation of the results obtained by these methods shows remarkably uniform determinations by the method of Waters and Tuttle and justify its selection as the preferable method.

The treatment in detail was as follows: The rubber (0.5 gram) was treated in a porcelain crucible with 25 c.c. of concentrated nitric acid saturated with bromine, the vessel covered with a watch glass and allowed to stand one hour. It was heated on a steam bath for one hour and then the cover was removed and the solution evaporated to dryness. The residue was fused with 5 grams of fusion mixture (sodium carbonate and potassium nitrate), extracted with hot water, filtered, the filtrate acidified with hydrochloric acid and the sulphur precipitated as usual.

The authors state as the summary of their investigation the following:

It is shown that the methods which have been proposed for the determination of the total sulphur, other than that present as insoluble metallic sulphates, are not satisfactory.

It is shown that loss of sulphur is likely to occur in the direct fusion methods, and this loss is apt to increase with increasing free-sulphur content. The method of Waters and Tuttle is recommended for the determination of total sulphur. This method is accurate and comparatively rapid and has given satisfactory results in the hands of a number of analysts over a rather extended period of time.

A new suggestion is offered, namely, to determine separately the free sulphur and the sulphur remaining after the acetone extraction, reporting the sum of the two quantities as the total sulphur. This procedure eliminates the troublesome effect of the free sulphur upon the determination of the total sulphur.

ANALYSIS AND VALUATION OF RUBBER. Philip Schidrowitz, Ph. D., in the "Analyst," May, 1915, publishes a comprehensive paper, with copious references to original sources, under the title of "Recent Advances in the Analysis and Evaluation of Rubber and Rubber Goods." The leading features of the paper are as follows:

I. CRUDE RUBBER.

The examination may involve:

(a) Chemical analysis, with a view to determining the quantity of pure rubber and of various impurities, and, to a certain extent, in some instances, the nature of the latter.

(b) Physical or mechanical tests, carried out either on the crude material or on the latter modified by the vulcanizing process, with a view to determining the physical and mechanical qualities of the rubber substance.

Chemical analysis has hitherto been subordinate in the commercial evaluation of rubber, partly on account of lack of exact knowledge regarding the nature of the secondary products (resins, nitrogenous substances, etc.), and partly owing to the absence of specific information on the influence exercised by them on the vulcanization process on the one hand, and on the more important attributes (strength, elasticity, etc.) on the other hand.

If the difficulties associated with the chemical investigation of the nature and influence of the "impurities" necessarily make progress in this direction slow, it is not surprising that work having as its object the identification and evaluation by chemical means of different rubber substances or caoutchoucs is still in a more or less embryonic state.

Recent work by Caspari suggests the possibility of discriminating, up to a point, by physico-chemical methods, between caoutchoucs of different commercial quality. According to Caspari, rubber is of a composite character and consists of (1) "soluble" rubber, which is a weak but elastic colloid, soluble in light petroleum, and (2) of "insoluble" or "pectous" rubber, which is an elastic colloid of considerable mechanical strength. The latter, in some respects resembling a slightly vulcanized material, preserves its structure on contact with solvents. It is, however, gradually dissolved by benzene and carbon tetrachloride, but whereas the viscosities of the soluble in Brazilian and plantation Para, respectively, are very similar, the "pectous" in the latter is far more readily attacked by benzene or carbon tetrachloride than the "pectous" of the former. According to Caspari, Brazilian fine contains 35 to 50 per cent. of "pectous," whereas plantation rubber examined by him showed no more than 10 to 25 per cent. Caspari believes that "nerve" or strength is mainly due to the "pectous" variety. The work of Caspari will require confirmation and amplification before it is applied to rubber evaluation. It suggests a new field of research indicating the possibility of estimating the quality by a direct physico-chemical method.

SECONDARY PRODUCTS—RUBBER RESINS. The outstanding feature of the work of Heinrichsen and Marcusson is that all resins excepting that from Para (*Hevea*) are optically active. In certain cases, therefore, the absence of optical activity in the extracted resin may be taken as evidence that no rubber other than *Hevea* is present. Para resin contains 15 per cent. and other resins up to 100 per cent. of unsaponifiable matter. The optical activity appears to be mainly due to the latter. Iodine values varying from 30.6 for Jelutong resin to 118 for Para resin were found. So far as the investigation has been carried it appears that the resins from vulcanized rubber exhibit the same characteristics as those from the crude material. D. Bloom, as the result of the examination of 150 samples of resin from different species, concluded that the "acid value" of the resin from the same species is constant.

The effect of rubber resin on vulcanizing capacity is a matter of controversy. Litharge has been shown to be practically inoperative as a catalyst in the absence of rubber resins. Where litharge or other catalyst was not employed it has been found that the rubber resins do not exercise any marked effect on the curing capacity.

MECHANICAL IMPURITIES. Beadle and Stevens give the following method (for these materials only). They "depolymerize" the rubber by heating with a solvent of high boiling point, thinning still further with a solvent of low viscosity, filtering and weighing.

INSOLUBLE MATTER—NITROGENOUS SUBSTANCES. This item does not apply to accidental mechanical impurities, but to natural and normal substances always present to some extent in crude rubber. While there is no proof that normal "insoluble" is essentially a nitrogen product (a part doubtless consisting of oxidation products) it is fairly certain that it normally contains a high proportion of nitrogen.

METHODS OF SEPARATION AND ESTIMATION. In W. Schmitz's method 2.5 grams rubber are treated with 50 c.c. of pentachlorethane for 5 to 7 hours at 85 to 90 degs. C. with the formation of very fluid solution readily filterable, particularly if somewhat diluted with chloroform. The residue can be further purified by dissolving in 5 per cent. solution of sodium hydroxide and reprecipitating with hydrochloric acid.

PRACTICAL CONSIDERATIONS. There is considerable evidence to warrant the assumption that the "insoluble" matter in crude rubber has an important bearing on vulcanizing capacity, but no quantitative relation has been discovered. While it has been shown that the removal of the "insoluble" markedly decreases curing capacity, the experience of the author is that rubbers with low proportions of "insoluble" do not necessarily cure badly, nor do samples with high "insoluble" necessarily cure rapidly. Probably "insoluble" varies so in composition that further methods of separation must be devised before "insoluble" can be taken as a criterion of quality. The author prefers the indirect method for determining "insoluble," which consists in evaporating a convenient volume of clear solution, obtained by treating 0.5 to 1 gram of rubber with 100 to 200 c.c. benzene in a tall cylinder, allowing to settle and weighing the residue in a pipetted portion drawn off from above the residue.

ESTIMATION OF RUBBER. Assuming a satisfactory method of separating the "insoluble" matter, the most satisfactory indirect method of estimating rubber is by deducting the sum of moisture plus resin plus "insoluble" from 100. This method involves the assumption that the whole of the ash and nitrogen are present in insoluble form. The author recommends the return of the analysis in the following form:

Moisture	Per cent.
Resin (acetone extract)	"
Insoluble matter	"
Rubber (difference)	"
The above contains:	
Ash (mineral matter)	"
Nitrogen	"
Nitrogen = protein	"

These notes apply only to routine technical analysis of which the chief object is to ascertain whether a distinct abnormality is disclosed and to control methods of production or of gauging suitability for specific manufacturing purposes.

DIRECT METHOD BY TETRABROMIDE FOR DETERMINING RUBBER. The reader is referred for details of this method to the work by Caspari on "Laboratory Methods for Rubber Analysis."

The reaction of bromine on caoutchouc is $C_{10}H_{16} + 6Br = C_{10}H_{16}Br_6 + 2HBr$.

ESTIMATION OF MOISTURE. The best method is (1) to dry in water oven at 98 degs. C. till an increase in weight becomes apparent or for a standard time of 2 hours, or (2) to take the difference between original weight of sample and weight after acetone extract plus the extract.

WASHING LOSS. It is generally agreed that if the sample is large and requires washing the analytical determination should be carried out on the washed, air-dried material.

PHYSICAL AND MECHANICAL TESTS.

VISCOSITY. A low viscosity almost invariably indicates poor quality. A determination of swelling capacity (per Caspari) may give more satisfactory results.

ADHESIVE TEST. Beadle and Stevens determine the load required to separate pieces of paper evenly coated with a solution of rubber. The paper is coated by drawing it over the surface of a 5 per cent. (or less) solution.

MECHANICAL TESTS. By this is meant tensile tests. These are of no value as applied to raw rubber.

VULCANIZATION TESTS. (a) MATERIAL.—State of aggregation (degree of polymerization) or physical condition of the rubber substance, quality and nature of resin, and of "insoluble" matter and acidity.

(b) PROCESS.—Temperature, duration of cure, method of heating, quantity of sulphur; and if fillers are used, their nature and quantity. So long as our knowledge of the physical and chemical nature of the impurities and of the rubber substance is incomplete it is impossible to devise any method of analysis or physical test which will enable us to determine quantitatively the effect of the various factors on vulcanization. Direct vulcanization tests are therefore, for the present, essential for the purpose of practical evaluation.

Broadly stated such may comprise: (a) Observations on material during or rather towards the process.

(b) Observations on the nature of the vulcanized product with regard to "rate of cure," relying on the mechanical properties of the cured stock.

There appears to be no direct connection between the "coefficient of vulcanization" and the technical properties of the material. Various types of tensile tests have been devised and are applied to vulcanized rubber. There is an essential difference between tests for the comparative evaluation of crude rubber and tests applied with the view of examining the specific properties of any given rubber article. With regard to the former it is desirable to use methods calculated to measure certain intrinsic and typical properties of the raw material, such as curing capacity, strength, distensibility and capacity for recovering.

Any system of evaluation based on factors influencing the vulcanization process must be carried out under standardized conditions of mixture, cure and test. Pure rubber and sulphur are considered the best because most uniform and also because a filler renders the reaction less delicate.

II. VULCANIZED RUBBER.

PREPARATION FOR ANALYSIS. This is accomplished by grinding the sample to a fine powder by a pair of steel or iron rolls.

GENERAL SCHEME OF ANALYSIS. A preliminary qualitative test is made with cold benzene or nitro-benzene. If the solvent does not become appreciably colored (yellow or brown) or fluorescent no considerable amount of bitumen has been used. Such materials vulcanize to a certain extent and may become more or less insoluble in consequence. If qualitative tests give positive results the method of analysis must be selected. For the separation of minerals, starch, fibers, etc., high boiling point petroleum should be employed as a solvent.

PATENTED TREATMENT OF RUBBER.

ELASTIC AND PLASTIC SUBSTITUTE FOR RUBBER. J. Stockhausen, German patent No. 280,144, elastic and plastic masses are obtained from glycerol-gelatin solutions by the addition of artificial resins from phenol and HCHOH glycerol-gelatine, especially the camphor-glycerol-gelatine masses obtained according to German patent, No. 277,653. The products are applicable in the manufacture of water hose. For example, gelatin, 2.5 kilos, is dissolved in glycerol, 2.5 kilos, and then intimately mixed with 0.5 to 1 kilo of camphor in acetone, 2 to 4 kilos shredded asbestos, 0.3 to 1 kilo sulphur, 0.5 kilo Frankfurter black, and 1 to 1.5 kilos phenol-resin; whereupon the mass is hardened and worked further according to the known methods. [Presumably this would be mastication on ordinary rubber warming mill, in preparation for feeding to a tubing machine for formation of hose tubes, etc.]

SPONGE RUBBER. Philip Schidrowitz and H. A. Goldborough, British patent, No. 1,111 (1914). This is an interesting new departure in the manufacture of sponge rubber. The usual processes for producing foamy or cellular rubber are based substantially on the principle of adding to the ordinary plastic rubber mixing, volatile or gas-forming substances, which, on the application of heat, give rise to a porous or cellular formation in the mass by their effort to escape.

The improved process of making rubber sponge is simple and economical, being carried out directly on the rubber latex. The method consists in first coagulating the latex under conditions producing a porous or spongy coagulum and then fixing the cellular structure so produced by vulcanization in a wet state. The amount and nature of the coagulant used depends on the nature and condition of the latex and character of product desired.

In the case of *Hevea* latex, acetic acid, other suitable acid or

acid salts may be used, with or without dilution of latex or without heat prior to vulcanization. In *Funtumia* latex, or a preserved latex coagulable by heat, heat alone will suffice. Carbon bisulphide, benzine, acetone or alcohol, or a mixture of the latter, may be employed with or without heat. The addition to the latex of gas-producing substances, such as carbonates or sulphides, modifies or increases the sponge formation if the coagulation takes place in presence of an alkaline medium such as ammonia. For vulcanization, sulphur, as such, or suitable sulphur compound which will liberate sulphur may be used. The vulcanizing agent is added either before or during incipient coagulation, and the mass may be directly vulcanized by subjecting it to vulcanizing temperatures, either in open steam or hot air or under water. The process permits the addition of fibrous substances, fillers, pigments, dyes or accelerating agents. The patentees give ten different examples, showing the application of their process.

One of these, however, will be sufficient by way of illustration. Equal quantities, by volume, of latex and of a saturated solution of ammonium carbonate mixed together are heated on a water bath and one per cent., by weight, of finely divided sulphur stirred in. Coagulation may be induced by adding a sufficiency of acetic acid while stirring the mixture. The containing vessel is then placed in a steam vulcanizer and cured about one hour at 286° F., the quantity of acid, curing time and temperature being varied according to the latex employed and the nature of the sponge desired.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

A business man in the United States has been requested to supply names of American exporters of rubber, with a view of exporting to the Netherlands. Report No. 16,958.

A business man in Spain desires to secure the agency for that country for rubber tires and novelties. Report No. 17023.

An exporters' association in the United States is in the market for 2,000 feet of garden hose with spiral tinned iron wire, as a sample, for a firm in Chile in the market for large quantities of hose. Report No. 17,051.

A taxicab company in Uruguay desires to represent American manufacturers of automobile tires. Report No. 17,079.

An opportunity is reported from Italy for the sale of rubber goods for surgical use—gloves, cushions, bags and tissues. Report No. 17,099.

The foreign office of a New York City firm desires to form commercial relations with manufacturers of rubber sponges and gloves. Report No. 17,137.

A Portuguese commission firm would represent American manufacturers and exporters of rubber tubing, syringes and other sanitary articles. Report No. 17,163.

A consular officer in one of the insular possessions where the duty on rubber shoes amounts to about 60 cents gold per pair, reports that a large department store in his district intending to install a rubber footwear department would like catalogs, prices and full information; also that there is a market in his district for rubber tire cement, on which the duty is 13 per cent. ad valorem. Report No. 17,186.

A wholesale and retail druggist is in the market for rubber goods. Report No. 17,228.

An opening is reported for cotton-lined rubber packing for packing boxes on ammonia compressors. Report No. 17,307.

The rubber reclaiming plant of the Bemis Rubber Co. has been closed down since March first. This is a well-equipped factory located at Watertown, Massachusetts, owned by Henderson & Korn, New York, who have withdrawn from the manufacture of reclaimed and are offering the plant at private sale.

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF RUBBER AND MANUFACTURES OF.

ARTICLES.	April, 1915. Quantity.	April, 1915. Value.	Ten Months Ending April, 1915. Quantity.	Ten Months Ending April, 1915. Value.
India rubber, etc., and substitutes for, and manufactures of:				
Unmanufactured—				
Balata .....*pounds..free*	101,232	$39,056	2,199,316	$860,589
Guayule gum	561,785	161,010	4,095,797	1,182,569
Gutta jelutong	2,515,151	142,938	12,964,184	637,428
Gutta percha	443,743	57,264	1,463,826	212,324
India rubber	20,425,334	10,284,000	136,932,185	65,084,558
India rubber scrap or refuse fit only for remanufacture	580,921	45,313	8,216,922	550,190
Total unmanufactured.	.....	$10,729,581	.....	$68,527,658
Manufactures of—				
Gutta percha ...*dutiable*	.....	$45	.....	$10,568
India rubber ... "	.....	39,862	.....	700,244
Total manufactures of.	.....	$39,907	.....	$710,812
Substitutes, elasticon and similar .....*dutiable*	.....	$2,963	.....	$27,738

IMPORTS OF CRUDE RUBBER BY COUNTRIES.

From:				
Belgium .....*pounds*	.....	.....	1,902,370	$950,872
France	44,800	$13,772	661,408	272,900
Germany	6,987	843	739,105	358,931
Portugal	668,922	218,977	3,288,442	1,074,425
United Kingdom	10,204,246	5,430,215	57,581,380	29,776,980
Central American States and British Honduras...	115,817	45,465	720,492	297,662
Mexico	59,293	34,116	1,411,959	546,446
Brazil	3,290,055	1,328,947	41,789,043	17,448,137
Other South America.....	169,996	65,931	3,951,302	1,700,923
East Indies	5,658,480	3,020,340	19,687,420	9,804,265
Other countries	206,738	125,394	5,199,264	2,853,017
Total	20,425,334	$10,284,000	136,932,185	$65,084,558

EXPORTS OF AMERICAN RUBBER GOODS.

India rubber, manufactures of:				
Scrap and old.....*pounds*	279,943	$38,479	1,772,006	$202,534
Reclaimed	581,598	83,458	4,992,649	696,339
Belting, hose and packing.	.....	149,648	.....	1,490,964
Boots and shoes—				
Boots .....*pairs*	5,919	14,755	310,824	704,558
Shoes	109,471	53,925	2,013,377	1,955,486
Tires—				
For automobiles	.....	655,043	.....	3,552,651
All other	.....	52,958	.....	355,877
All other manufactures of.	.....	417,752	.....	2,627,749
Total	.....	$1,476,018	.....	$11,586,158

EXPORTS OF AUTOMOBILE TIRES BY COUNTRIES.

Tires for automobiles:				
France	.....	.....	.....	$6,090
England	.....	$378,738	.....	1,909,439
Canada	.....	77,008	.....	541,400
Cuba	.....	21,023	.....	138,853
Mexico	.....	7,701	.....	81,050
Australia	.....	26,421	.....	160,736
Philippine Islands	.....	48,808	.....	209,439
Other countries	.....	105,344	.....	505,644
Total	.....	$665,043	.....	$3,552,651

EXPORTS OF FOREIGN MERCHANDISE.

India rubber, etc., and substitutes for, and manufactures of:				
Unmanufactured—				
Balata ....*pounds..free*	57,636	$19,931	906,700	$348,371
Guayule gum	2,160	626	2,160	626
Gutta percha	.....	.....	3,460	1,488
India rubber	373,426	187,121	5,789,065	3,071,503
Total unmanufactured.	.....	$207,678	.....	$3,421,988
Manufactures of india rubber .....*dutiable*	.....	$30	.....	$5,478
Substitutes, elasticon and similar .....*dutiable*	.....	.....	.....	345

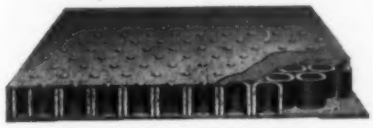
The automobile tire plant of the Continental Société Anonyme de Caoutchouc Manufacturé, at Clichy, near Paris, was destroyed by fire on May 16, the estimated loss amounting to $250,000.

The Avon Sole Co., which manufactures the "Duflex" shredded leather and rubber sole, is building an addition to its plant at Avon, Massachusetts, work on which will be carried out with all possible haste. It is hoped by the company to have this addition ready for occupation by early Fall.

New Rubber Goods in the Market.

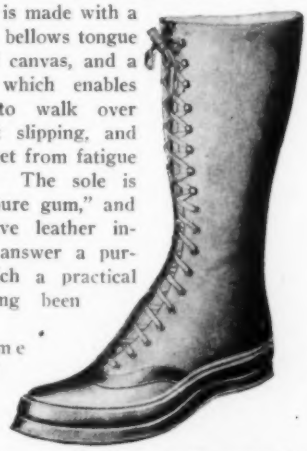
UTILIZING SCRAP HOSE IN A RUBBER MAT.

IN the construction of the rubber mat illustrated herewith —on which patent application has been made—the object has been attained of producing a mat suitable for many purposes at a considerable saving over the cost of the solid rubber or cloth inserted mat. The filler of this mat is made from scrap garden hose, the pieces being cemented together and then wrapped with fabric and impregnated with rubber. Where protection against extra rough usage is required, an extra layer of fabric is placed on the upper surface, with a covering of rubber over it. All sections are then cured together, making a solid unit which gives equal distribution of strain. The surface pittings are caused by the fabric and rubber covering being forced into the ends of the hose sections, which helps to lock them securely together. This pitting can be eliminated if desired by the use of more stock. The mat as illustrated is adapted to use as a bowling alley pit mat, in dynamo pits, in power plants and anywhere where a mat is used to relieve the shock of heavy articles dropping on the floor. It will stand a greater amount of abuse than the ordinary rubber mat, and also will last longer, according to its designer. Other materials than scrap hose can, of course, be used as a filler, the degree of resiliency depending upon the kind of tubing employed. By the use of gum tubing an excellent gymnasium mat is produced. [Web. Brown, The Republic Rubber Co., Youngstown, Ohio.]



NEW RUBBER FOOTWEAR.

The wading shoe illustrated herewith is designed especially for general wading purposes, at the seashore, and for use of fishermen. It is made with a high top, with bellows tongue of waterproof canvas, and a suction sole which enables the wearer to walk over rocks without slipping, and protects the feet from fatigue and bruising. The sole is made from "pure gum," and the shoes have leather insoles. They answer a purpose for which a practical shoe has long been desired.



The same manufacturers have added a new pump to their already extensive line. This style is made in men's and women's. It has a fine black duck upper and white rubber sole and heel, also a white kid insole, which adds greatly to its appearance. [Apsley Rubber Co., Hudson, Massachusetts.]

SPORTSMAN'S WATERPROOF COAT AND LEGGINGS.

Among the new articles recently put upon the market and which are likely to meet with instant popularity among lovers of sports are the Hodgman Guaranteed Waterproof Sportsman's Coat and Leggings. These articles are suitable for golfing, fishing, hunting, motorcycling and various other similar uses. They are made of a light-weight but exceptionally strong olive material, with a coating of fine rubber on the inside. The coat is cut full, with large arm holes, and is ventilated. There is one large inside pocket, tabs at wrist, and the collar buttons close. The leggings thoroughly protect the legs and knees and are made hip length. They are held in place by a loop at either side through which the belt or suspender passes. Owing to the light weight and pliability of the material, both articles may be rolled or folded into a very small bundle and conveniently carried. [Hodgman Rubber Co., New York.]

A NEW DIAMOND GOLF BALL.

The Diamond brand golf ball, which for so long has held a conspicuous place in public favor, is now being made with a white rubber enamel finish, by a process held to be exclusive, to keep the ball permanently white and free from tackiness and consequent inclination to pick up the dirt. In addition to the "Diamond Ace" and "Diamond Deuce," designed respectively for heavy and easy hitters and made in small sizes, in weights of 30 and 27½ pwts., a new ball, the "Diamond Trey," has been put on the market this season. This new ball, which is a full-size floater, is also made with the white rubber enamel finish, at the same price and with the same markings that distinguish the two smaller balls, which float. [The Worthington Ball Co., Elyria, Ohio.]

THE GRYPHON TIRE.

A new tire known as the "Gryphon," constructed of fabric treated by a special process by which the plies of fabric and rubber are made inseparable, is being manufactured by the Motor Tire Re-Construction Co., of 52 Vanderbilt avenue, New York.

RUBBER NOVELTIES FOR THE BATHING BEACH.

Here are illustrated several of the season's latest novelties in accessories for the bather, one of them so new that, although patent has been duly applied for, the article has not yet come on the market in any considerable quantity. This is the "Bathing Cap Carryall Bag," shown in each of the illustrations, in one as a very attractive bathing cap, and in the other opened out and carried on the arm as a bag. This combination accessory is made of rubberized material in numerous color combinations. The same manufacturer is turning out an extensive line of handsome new collars, of which one in Quaker style is shown above. Another attractive novelty is the rubber stole or shawl, an improvement over the rubber cape of last season. This, like the

collar, is made in both plain colors and combinations, and has fringed ends. Still another is a rubber-covered rope, in colors to harmonize with the costume, which can be worn as a girdle when in the water, and used as a skipping rope on the beach. [The L. C. Studios, New York.]

One of the above illustrations shows a bandeau of rubber with rubber daisies in almost perfect imitation of the natural flower. Bands of numerous colors ornamented with these daisies are finding ready sale, their natural appearance and excellence of workmanship being quite in keeping with the standard of the fine line of rubber fruits and flowers produced by this manufacturer under the trade name Rub-Berries. [Stern Specialty Co., New York.]

A RUBBER PROTECTED AUTOMOBILE WASHER.

The automobile washer shown in the illustration is of the non-rust variety, meing made of aluminum, and is therefore supposed to have unusual lasting qualities. It can be attached to any ordinary hose, and besides the brush illustrated a sponge is supplied with each outfit.

Either of these attachments can easily be inserted in the holder and held in place by a simple locking device. A heavy rubber band around the holder protects the surface being washed against scratches. An extra length of handle accompanies each outfit, also a device for cutting away heavy mud. [Tempco Manufacturing Co., Inc., Chicago.]

A BLACK TREAD NON-SKID MOTORCYCLE TIRE.

By the use of the motorcycle many persons are now able to take frequent brief trips into the country and to enjoy vacation tours of considerable length and interest through sections with which they would otherwise not be able to familiarize themselves. These extended country trips, over roads not always of the best, call for tires of extra strength—and to meet this demand there has just been placed on the market a new and distinctive type of tire. This is the Goodrich Safety Tread Motorcycle Tire. It is built of three plies of heavy automobile fabric and has a tread of jet black rubber, similar in design to the familiar safety bar tread of the Goodrich automobile tire. This new tire is most attractive in appearance and its maker claims for it greater strength and endurance, both because of the reinforced construction which is combined with a breaker strip and because of the high quality of rubber from which the tread is made. The tire is moderate in price, costing less than most of the non-skid motorcycle tires on the market. [The B. F. Goodrich Co., Akron, Ohio.]

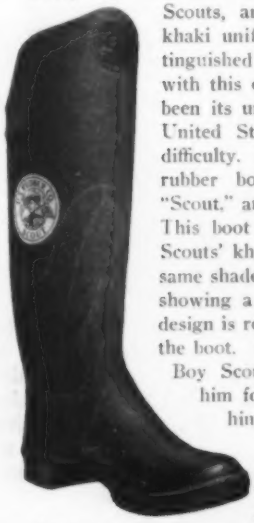
A FOUNTAIN PEN IMPROVEMENT.

An important development in fountain pen construction is the introduction of a pen which possesses all the features of the regular type while at the same time having a pneumatic device for filling it direct from the ink supply. In the illus-

tration a small lever will be noted on the side of the pen. By simply raising and lowering this lever, with the point of the pen in the ink, the barrel is filled; then the lever is snapped down and tightly closes the ink tube. [L. E. Waterman Co., New York.]

THE BOY SCOUTS' OUTFIT NOW COMPLETE.

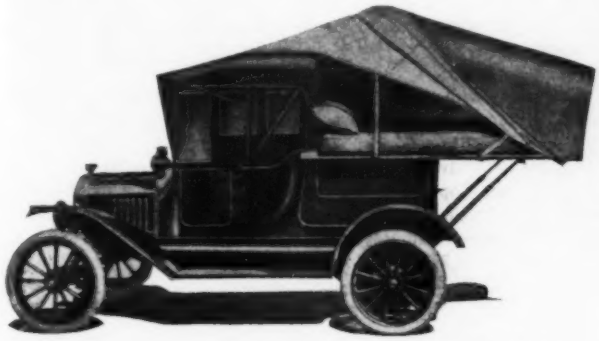
Every boy who is a real boy wants to belong to the Boy Scouts, and the next thing he wants is the khaki uniform that gives the Scouts their distinguished military bearing. But the trouble with this equipment up to the present time has been its unpreparedness for stormy days. The United States Rubber Co. has remedied this difficulty. It has just put on the market a new rubber boot, about knee length, called the "Scout," an illustration of which is here shown. This boot is made in tan color to match the Scouts' khaki suit and has a knit lining of the same shade. On the side there is a paper paster showing a Scout waving a flag, and the same design is reproduced in blue rubber at the top of the boot. It is a very attractive adidtion to the Boy Scout's uniform and thoroughly equips him for the arduous duties devolving upon him, regardless of weather.



Among the novelties in German toy manufacture is one which represents a French soldier being taken captive by a German, these figures being set in motion by a small rubber tube with bulb attachment.

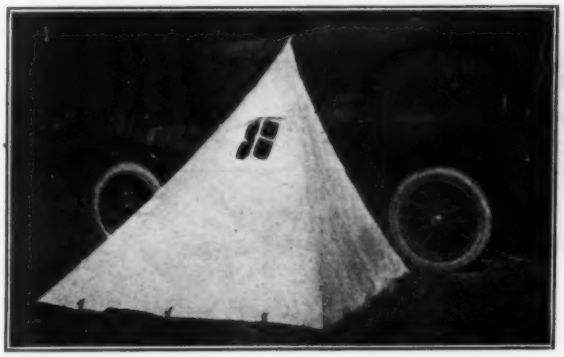
OUTING EQUIPMENT.

THE following illustrations show a variety of outing equipment new this season. Several of these improvements are intended for automobilists who prefer to spend their sleeping as well as their waking moments on the road, or close to it. The first illustration is of the "Auto. Camp Bed," which rests on the rear of the automobile, and, having besides its water-



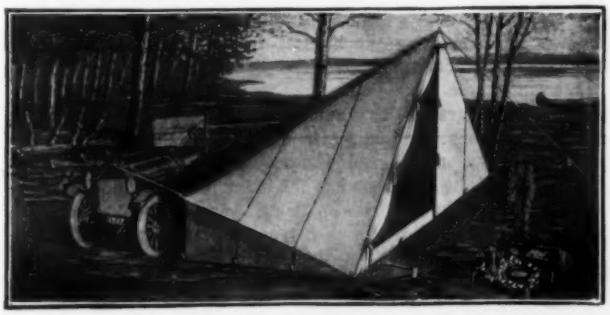
proof covering a pneumatic mattress 42 x 76 inches in size, provides sleeping quarters for two. This tent is designed for automobiles of the roadster type.

The peak tent is made, in its finest form, of balloon silk, rubberized, and is extremely light in weight, also capable of



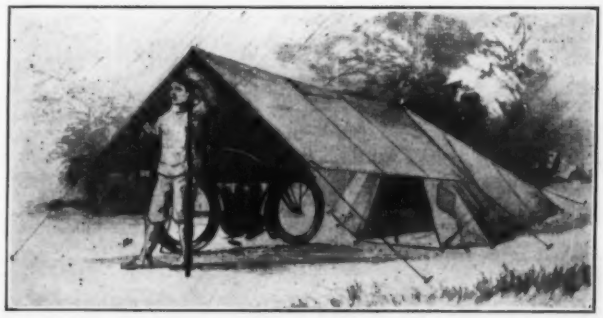
being rolled into very small space. To set it up requires only a few pegs and a rope, which is attached to the peak, thrown over the top of the machine and tied at the other side. A thick floor serves to protect against dampness and insects.

The third automobile tent is made of waterproof khaki and



other materials, and weighs, with waterproof ground cloth, three-jointed pole and carrying bag, from 20 to 28 pounds. It is large enough to hold three cots. (New York Sporting Goods Co., New York.)

A combination poncho and tent has been designed for the



motorcyclist. The poncho is 68 x 94 inches in size, and weighs only 2 pounds. By a slight adjustment of tent pole and ropes the poncho can be converted into a tent extension to protect the motorcycle as well as the rider.

Should the camper be unfortunate in his selection of a spot to pitch his tent, and later find the place infested with mosquitos, all he has to do is to don the smoker's head protector illustrated. This is made of very fine gauze with a horse hair net in front in which is set a self-closing valve covered with slotted rubber. Through this valve he may insert his pipe and smoke undisturbed by insect life. (Abercrombie & Fitch Co., New York.)

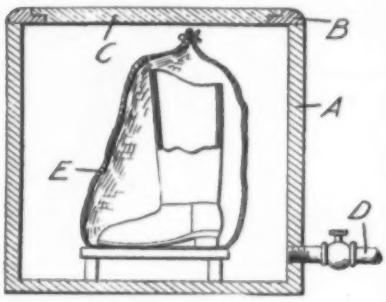
The pedestrian camper must carry his necessities on his back, and the aim to render this task as easy as possible has led to the introduction of several new waterproof ruck sacks. One of these has been especially designed for the Camp Fire Girls, and is called the "Squaw Bag." It is made of waterproof "Kiro" cloth, and will hold a load of 20 pounds. It weighs, alone, only 9 ounces. (New York Sporting Goods Co., New York.)

The designers of the smoker's protector make also the Alpine ruck sack, which is illustrated, in use. This bag is made up of a number of gores, of waterproof khaki, weighing 2⅜ pounds. It can be folded into very small space, or will open out to considerable size. It is said to be strong enough to carry a couple of reindeer, the strain being taken off the cloth and put on the leather straps. The last illustration shows another new ruck sack, made of rain-tight government khaki of strong texture to withstand all necessary strain.

New Machines and Appliances.

PRICE'S VACUUM VULCANIZERS.

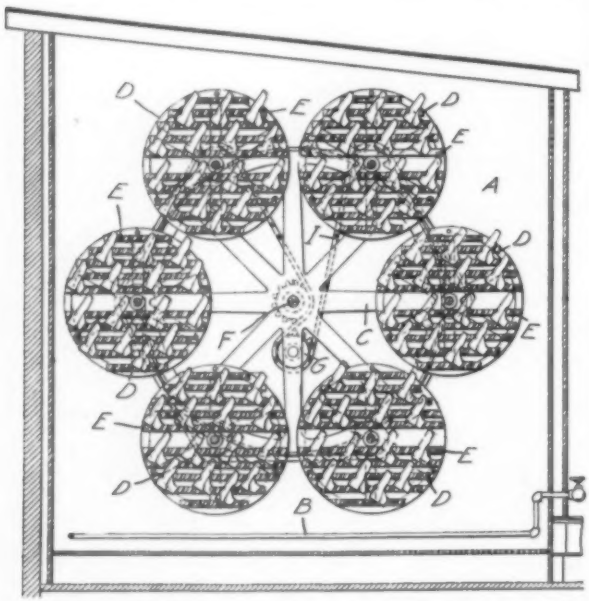
IN the manufacture of tires, footwear, hose, and in fact practically all articles wherein rubber forms a component part, the elimination of air and moisture is very necessary to produce reliable goods. Price accomplishes this result by building the article in a vacuum. His invention covers this principle as applied to the manufacture of footwear, tires, hose and the building up of plies of fabric and rubber. The illustration shows only the apparatus for manufacturing rubber boots. *A* is the air tight casing. *B* is the cover with a removable plate of glass *C*, and *D* is the vacuum pipe. The air tight bag E is placed around the boot to prevent direct contact with the air. The bag is subsequently removed, and the boot subjected to the usual vulcanizing process. [Raymond B. Price, United States patent No. 1,132,971.]



RIEDER'S FOOTWEAR VULCANIZER.

This invention may be said briefly to consist of a drum that rotates within a closed vulcanizing chamber. The articles being vulcanized are revolved with the drum for the purpose of uniform vulcanization.

The oven or chamber *A* contains a heating coil *B* regulated by a valve. Within the oven a drum *C* is supported in bearings



and has mounted thereon a series of six stick carriers *D*. The adjacent sides of the carriers have a series of parallel angle iron racks *E* which hold the sticks upon which the lasted rubber shoes are carried during vulcanization. These stick carriers are supported on shafts and revolve in bearings mounted upon the ends of the drum.

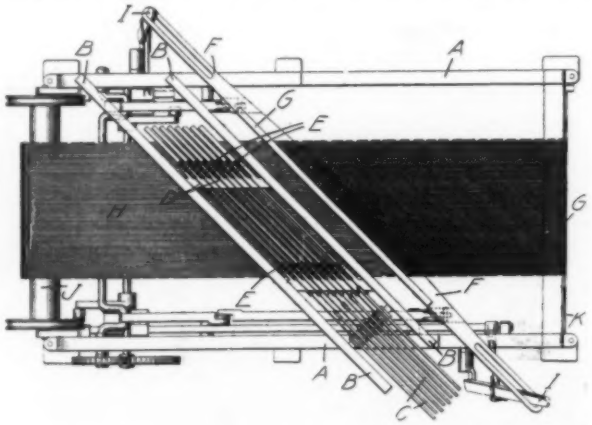
The drum is mounted upon and keyed to a shaft *F*, extending through and supported in bearings in the walls of the ovens and is driven by a reduction gear connected to the main driving shaft.

The stick-carriers while revolving with the drums are made to maintain the sticks and lasts constantly in a horizontal or level position, by sprocket wheels driven by sprocket wheel *G* and an endless chain *I*.

The sticks with the lasted rubber shoes are set in the notches of the different stick carriers, the drum being turned by hand to enable this to be done. When the carriers are fully charged the drum is revolved by power, steam is admitted to the coil, and the vulcanizing operation otherwise carried on in the usual way. Thus each article passes through the zones of the highest, medium, and lowest temperatures. [T. H. Rieder, United States patent No. 1,138,791.]

DIAGONAL WEFT LOOM.

This is a power loom for weaving fabrics in which the weft or filling is disposed at other than a right angle with respect to the warp threads, preferably at an angle of about forty-five degrees.



The lay and harness are arranged diagonally to the longitudinal axis of the loom and the warp threads, the latter passing, as is usual, from a beam, through the harness and through the reeds carried by the lay, which swings to and fro in the direction of the warp and diagonally to the length of the lay.

In the illustration, the side frames *A*, are connected together by cross beams, with arches *B*, extending between the frames at the top for supporting the harness frames. The arches *B* lie at an angle of about forty-five degrees and support the harness at the same angle.

The harness frames, any number of which may be used, are offset slightly so that their side edges will lie parallel to the warp. This is done to enable the warp to be moved vertically by the heddles of the harness when the latter is raised and lowered, without causing undue friction on the warp threads. The heddles are moved by a well known type of head motion and comprise a number of jacks *C*, in the form of elbow levers, from the upper end of each of which two straps *D*, extend, passing over rollers *E* and down to the harness frame, there being two of said straps for each frame. On the opposite or horizontal ends of the jacks, other straps pass around pulleys at the bottom of the frame, thence toward the center of the frame and around pulleys, not shown, to the bottom of the harness frame. The jacks are operated by devices well understood and therefore not shown.

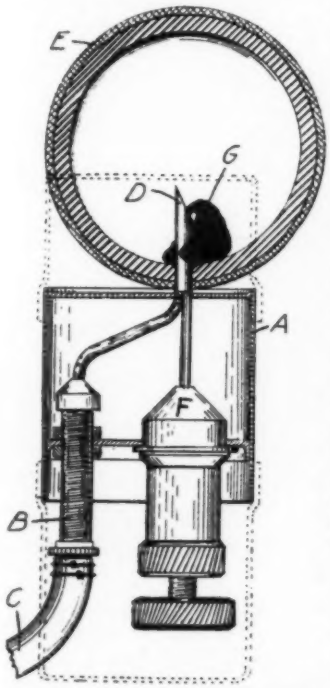
The lay *F* is similar to that commonly in use, and has the reed

G rising from the top through which the warp threads *H* pass. The lay extends across the frame in a diagonal direction parallel to said harness, the shuttle being thrown back and forth across the lay by the picker sticks *I*.

The warp threads *H* carried on the yarn beam *J* pass over a roller and thence through the heddles of the harness frames and the reed, the shuttle being driven back and forth on the forward side of the reed in order to weave the fabric which passes over a tension bar and is wound up on the cloth beam *K*. [A. H. Henderson and J. T. Mahon, assignors to the Henderson Rubber Co., United States patent No. 1,141,635.]

TENNIS BALL INFLATOR AND SEALER.

New tennis balls frequently lose their resiliency and become unsalable, while those used in play finally become soft and lacking in rebounding qualities. A device for inflating and restoring tennis balls, and one that can be easily carried about, is shown in the illustration. *A* is the case that supports the air valve *B*, which is connected with an air pump (not shown) by a rubber tube *C*.



Assume the ball *E* to have lost its resiliency and to be "dead." The operator first punctures the ball with the needle *D*. He will then operate the pump, thereby inflating the ball, the operation being continued to whatever extent the operator deems best, and as determined by pressure of the fingers and thumb upon the ball. The pumping operation is then discontinued, whereupon the check-valve will automatically close and prevent the compressed air from escaping from the ball. The screw of the cement tube *F* is then operated, forcing the cement *G* into the ball, which the operator slowly rotates, thereby equally distributing the cement about the puncture. The needle may then be withdrawn, and the cement will flow over and into the puncture, sealing it perfectly; for the rubber cement will adhere strongly to the inner structure of the ball. The dotted lines represent the caps or covers that are used when carrying the device about. [A. A. Green, United States patent No. 1,138,749.]

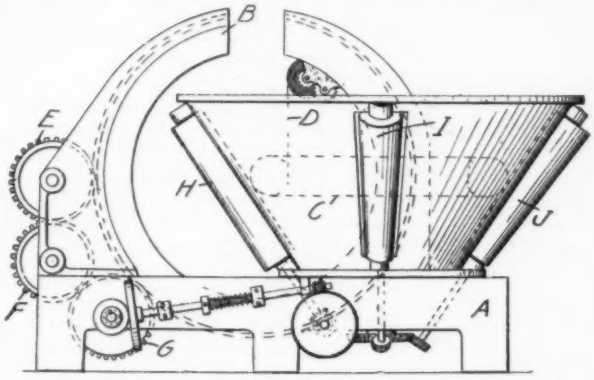
TIRE WRAPPING MACHINE.

This invention of P. E. Welton is an improved machine adapted to wrap paper, tape or other fabric spirally around an annulus. It is designed to wrap strips of paper or cloth around pneumatic tires and tire casings, irrespective of their size.

Referring to the illustration, *A* is the base and *B* the annular shuttle whose function is to wind the strip *D* around the tire *C*. A portion of the shuttle is cut away, leaving an opening through which the tire is placed in the machine.

The removable flange of the shuttle *B* is formed with peripheral gear teeth. Two driving gears, *E* and *G*, mounted on the frame of the machine, engage with the shuttle gear, being placed apart so that when the cutaway part of the gear is adjacent to one of the gears, the other driving gear will continue to turn the shuttle. An intermediate gear *F* transmits motion from the gear *E*, which is fixed to the driving shaft.

The tire while being wrapped is supported in a horizontal plane by five rollers—*H*, *I*, *J*, and two others not shown. These rollers are inclined and revolve in bearings supported by upper

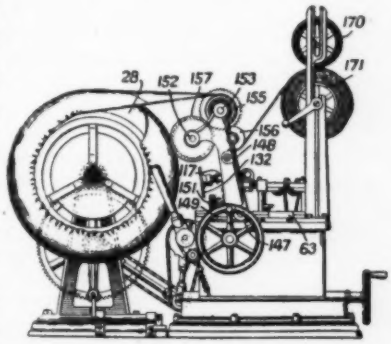


and lower annular frames. A portion of these frames is cut away, leaving a gap which is in the vertical plane in which the shuttle turns. Rollers *H*, and the one opposite (not shown) are the driving rollers, and they are preferably of cylindrical form.

In operating the machine, one side of the tire is passed through the opening in the shuttle and its supporting guide member. The tire will come to rest in a horizontal position in contact with the inclined rollers. When the tire is so placed, it will surround one side of the shuttle, and likewise one side of the tire will be surrounded by the shuttle. The end of the paper or fabric strip is then drawn from the roll and made fast to the tire and the machine set in operation. As the shuttle turns it winds the strip spirally upon the tire which is being slowly turned in a horizontal plane. [P. E. Welton, United States patent No. 1,140,729.]

A NEW TIRE CASING MACHINE.

W. C. Stevens has invented a machine for making fabric foundations for tire casings. Plies of frictioned fabric are wound under uniform tension on a rotating mandrel, means being provided for rolling down the sides of the shaped fabric layers without the formation of creases.



Referring to the drawing, the fabric is unwound from the drum 171, the liner being taken up on roller 170. The strip is then led under the guide-roller 156 and around the tension-roller 155 to the mandrel 28. This is rotated and drives the friction - roller 157 on the shaft 152 geared to the shaft 153, carrying the roller 155 which is arranged to exert a dragging or tensioning action on the fabric. The frame 148, carrying the tensioning devices, rocks on a shaft 147, under the control of springs 151, bearing on horizontal arms 149 of the frame. After each layer is applied, the core is rotated at a greater speed and the devices for rolling down the sides of the fabric are advanced towards the core. The rolling discs 132, are advanced towards the core by the carriage 63, and are forced against the sides of the casing by a weight

suspended on a cable, the ends of which are attached to pivoted arms carrying the roller supports 117. The rollers act obliquely and their inclination is adjustable to facilitate working on the beads. A lever is provided for swinging the arms 117, clear of the core against the action of the weight, which lever may also be used to relieve or increase the pressure of the rolls on the core. For trimming the edges of the finished foundation, a pair of cutters is fitted in adjustable holders on slides near the edges of the carriage 63. [W. C. Stevens, British patent No. 3585, 1914.]

OTHER DEVICES.

TIRE SHOE AND METHOD OF MAKING.—The frictioned fabric strip of loosely woven material is wound spirally around an annular form. The casing is then split around its inner periphery and the strips folded back, enclosing the bead wires and reinforcing the tread. [Charles T. Dickey, assignor to Voorhees Rubber Manufacturing Co.; United States patent No. 1,138,092.]

PROCESS OF MAKING INNER TUBES.—The stock is forced over a mandrel to which graphite has been applied. The tube is then vulcanized, and when reversed it presents a smooth, durable outer surface. [Arthur W. Savage; United States patent No. 1,138,250.]

MOLD FOR TIRE FILLERS.—This is for casting a resilient tire filler in the form of a ring having a continuous channel on its inner periphery. [H. J. Hardie; United States patent No. 1,139,276.]

MAKING COLLAPSIBLE CORES.—The separate segments are cast in dry sand molds and then assembled, producing a complete collapsible core; the customary way being to first make the core and then cut it into segments. [Peter Bacher; United States patent No. 1,139,325.]

COLLAPSIBLE CORE LOCKING DEVICE.—The locking ring is split and the ends are drawn together by the bolt-shaped locking device. This aligns the sections of the core and locks them in place. [Martin D. Kuhlke; United States patent No. 1,140,045.]

PNEUMATIC TIRE CORE.—This is a rubber core intended to be inserted in the inner tube or casing as a substitute for air. [Monsel Bracey; United States patent No. 1,140,242.]

SHEET METAL COLLAPSIBLE CORE.—The core sections are chambered for steam, and have relatively thin walls as compared with the heavy cast-iron sections of the ordinary core. [Joseph Chalfant and Harve G. Haun; United States patent No. 1,140,499.]

TIRE REPAIR AIR BAG.—This bag is designed to distend and support the walls of collapsible tubes during vulcanization in repairing automobile tires. [Peter Powell, assignor to Standard Tire & Rubber Co.; United States patent No. 1,140,527.]

CIRCULAR BRAIDER.—This machine makes tire casings in tubular form with closer mesh at one side than at the other, and is particularly adapted for spring wire braiding. [Adolph L. De Leeuw; United States patent No. 1,141,382.]

A NEW VULCANIZER TO BE CARRIED IN THE CAR.—The heat is applied and at the same time limited by improved devices. The clamping arms and screws are collapsible so that the vulcanizer occupies a small space. [James E. Bancroft; United States patent No. 1,141,519.]

TIRE REPAIR VULCANIZER.—This device can be used for bicycle as well as automobile tires. A variety of molds is not required as the sides of the vulcanizer are adjustable. [Charles E. Miller; United States patent No. 1,142,526.]

A RAMLESS PRESS VULCANIZER.—The usual hydraulic ram and cylinder are done away with in this new machine. The vulcanizer cylinder contains a piston, suitably packed and fitted, upon which the molds are placed, and the piston or ram is operated by hydraulic pressure. Thus the vulcanizer serves the double purpose of a ram cylinder and a vulcanizing chamber. The head is raised and lowered by two small hydraulic rams fixed to the side of the vulcanizer. [J. H. Nuttall and David Bridge & Co., Limited, British patent No. 978, 1915.]

CEMENTING MACHINE.—This invention applies cement or other coating materials to stock, and is particularly adapted for cementing leather shoe uppers. [Hiram Holden; United States patent No. 1,138,565.]

SOLE AND WELT CEMENTING MACHINE.—The novelty in this device consists in the regulation and control of the cement, and also in the means for cleaning the brush. [Charles P. Stanbon, assignor to United Shoe Machinery Co.; United States patent No. 1,138,903.]

DUPLEX CEMENT APPLYING MACHINE.—Where parts of leather footwear in duplicate, or rights and lefts placed face to face, are to be cemented, this machine applies the cement to both of the outside surfaces at the same time. [William F. Lautenschlager; United States patent No. 1,140,602.]

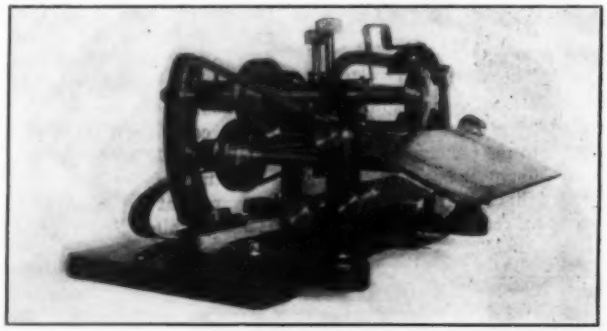
SOLE CEMENTING MACHINE.—This is used in the manufacture of leather footwear, where it is sometimes necessary to apply cement to one side only of a piece of stock and at other times to both sides. [Michael F. Brogan, assignor to United Shoe Machinery Co.; United States patent No. 1,141,311.]

A NEW MIXER ROLL.—The chambers between the outer shell and the hollow central shaft are supplied through the latter with heating or cooling fluid. [Miller & Co., and J. White; British patent No. 715, 1914.]

LATEX COAGULATING APPARATUS.—Shallow pans containing the latex are supported in tiers on frames within smoke chambers. The latex is coagulated by smoke produced in a wood combustion furnace. [F. Ripeau; British patent No. 2,281, 1914.]

THE WILLS OVERFLOW TRIMMING MACHINE.

This compact, light running machine is demonstrating its usefulness as an efficient labor-saving device in many leading American rubber factories, where it may be found singly or in groups—up to fourteen machines in number. A practiced operator with one of these trimmers can do perfect work, and in speed of output (2,500 pairs of heels per day) exceed that of the most expert hand-maker fully 200 per cent. Although designed primarily for heel trimming it can be made, by means of suitable attachments, to trim a variety of rubber work, such as soles, basin

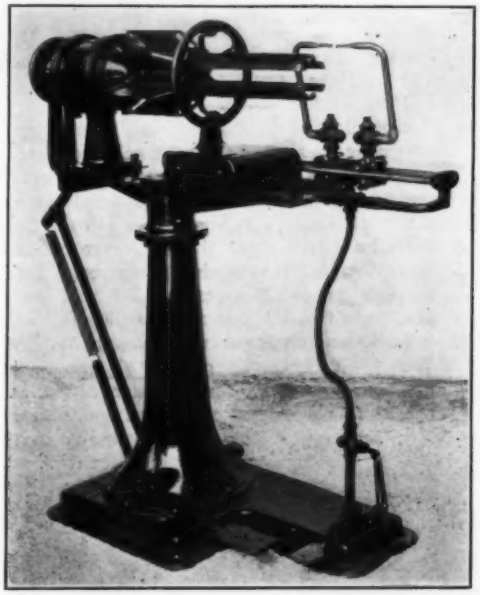


plugs, stoppers, valves, discs, diaphragms and numerous other small molded specialties. The machine consists of a pair of rotary shears, sensitively regulated by the operator with relation to the position of the overflow to be removed. The article is hand-guided or rotated past the cutting point as it rests on the adjustable work table.

The trimmer, in material, workmanship and design, embodies the best modern practice. It is a bench machine, requiring only one-eighth horse-power for its operation. [Arthur J. Wills, North Brookfield, Massachusetts.]

THE VAN NOTE INNER TUBE MACHINE.

A novel machine used in splicing inner tubes has recently been placed on the market by John E. Thropp's Sons Co. which is of interest to tire manufacturers and repair men. Referring to the illustration, it consists of a base and a pedestal that supports the expanding mandrel and the tube turning head. The mandrel is formed by six segments that are expanded and contracted by a

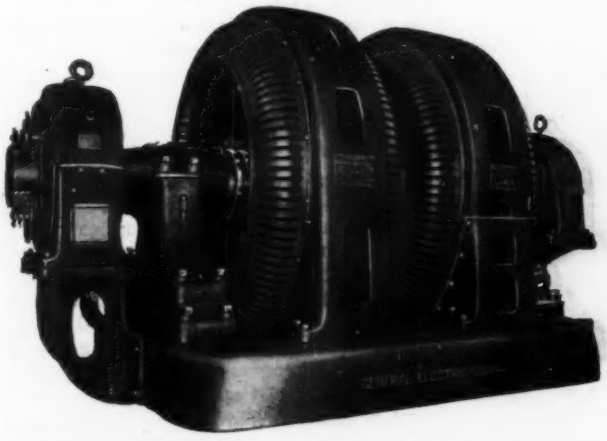


toggle joint operated by a foot treadle. Leather bands are fastened to the end of each segment and their opposite ends are attached to the drawing head wheel.

The skived tube is placed over the mandrel, which expands automatically, holding the tube firmly in place. The drawing head is pulled forward by the hand wheel and the bands turn the male end of the tube. The reverse turn is made by compressed air and a simple motion of the operator's fingers.

MOTOR-GENERATOR SETS.

Bulletin No. 42,552, entitled "Motor-Generator Sets," has just been issued by the General Electric Co., and is an attractive publication of 28 pages, containing numerous illustrations of



various types of motor-generator sets designed and manufactured by that company. They are divided into three general classes: First, direct current to direct current sets; second, alternating current to direct current sets, or vice versa, varying in capacity from 0.2 kw. to 1,500 kw., and, third, alternating current to alternating current sets between two periodicities, commonly called "frequency changers." For this work machines are supplied which are pure motor generators; that is, all the power is converted into the mechanical form in the motor and reconverted into electrical power in the generator.

Frequency changers are necessary wherever power of a different frequency from that of the supply is desired. Sixty-cycle current has become practically standard in America for lighting purposes and also for a large number of power applications, since it permits the operation of incandescent lamps of all sizes and of multiple arc lamps, and it also gives a much larger number of speeds for induction motors. The most common use of frequency changers, therefore, is to furnish 60-cycle service from a 25-cycle hydro-electric transmission line or steam system. For instance, a large water power development brings cheap 25-cycle power over a long transmission line to a rubber mill having a 60-cycle system. The steam plant is shut down and power obtained from the hydro-electric system through frequency changers, the steam plant being maintained as a reserve in case of low water or transmission line trouble.

NEW TRADE PUBLICATIONS.

THE latest issue of "Foot-Prints," a periodical publication issued by the Canadian Consolidated Ruber Co., Limited, of Montreal, for distribution among the retail trade of the Canadian provinces, contains numerous suggestions for increasing sales not only of the many footwear styles being manufactured by the company, but also of its rubberized garments. This latest issue has 47 pages, illustrated with reproductions of photographs of company officials and with latest footwear and raincoat styles. The company maintains 28 service branches throughout the Dominion from which dealers may draw their stocks.

"South American Hand-Book" is the title of a 55-page paper-bound book recently published by the National Foreign Trade Council, 64 Stone street, New York, an organization composed of merchants, manufacturers, railroad and steamship men and bankers representing all sections of the United States, and interested in promoting foreign trade. The "South American Hand-Book" is a very complete compilation of information concerning the public indebtedness, foreign commerce and railway development of South American countries. It covers the whole South American field and is of special interest now when agitation is so strong in favor of foreign trade expansion.

A LOOSE LEAF SUGGESTION BINDER.

A novel form of publicity promotion and one likely to meet with more than usual appreciation by the dealer has been adopted by the Firestone Tire & Rubber Co., of Akron, Ohio, in the form of a window display suggestion binder which has been sent to Firestone pneumatic tire dealers throughout the country. As distributed, the binder contained two sheets showing two attractive window displays. At regular intervals throughout the year additional sheets containing other display ideas will be sent to these dealers, to be bound in their suggestion books; so that in time these will become volumes of valuable suggestions for sales promotion.

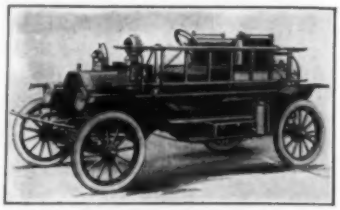
"WHITENEN" FOR GOLF BALLS.

"Whitenen" is a new preparation for whitening golf balls and making them visible at almost any distance. It is put up in 25-cent cans supposed to contain enough material for 35 applications, and it can be applied, by the aid of a string and a pin, without even soiling the hands. [Brauer Bros., St. Louis, Missouri.]

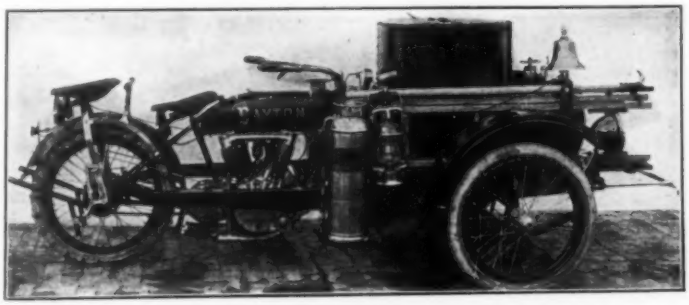
PUBLICATIONS OF THE SOCIETY OF AUTOMOBILE ENGINEERS.

THE Society of Automobile Engineers, or the S. A. E., as it is generally called, publishes in pamphlet form the papers read, and the recommendations of its standards committees submitted at its semi-annual meetings. At the last meeting, held June 14-17, nearly a score of pamphlets were issued. They included printed reports of the various division standards committees on the following subjects: Iron and steel, springs, electric vehicles, electric equipment and carbureter fittings. The papers read at that time, and also published in pamphlet form, included "The Size and Inflation of Pneumatic Tires," by P. W. Litchfield, factory manager of the Goodyear Tire & Rubber Co., of Akron; "Pressed Steel Wheels for Pleasure Cars," by Orrel A. Parker; "Farm Tractors and Their Motors," by Philip S. Rose; "Automobile Clutches," by F. W. Herst; "Automobile Lubrication," by C. W. Stratford; "Spiral Type Bevel Gears for Automobile Drives," by A. L. Stewart; "Aeroplane Engines," by Neil Mac Coull, Jr.; "Aluminum Alloy Pistons," by Eugene Gruenewald; "Spring Design," by C. H. Gleason; "Road Tractors," by Frank H. Trego, and "Rational Method of Determining Mileage of Electric Vehicles," by T. H. Schoepf.

The paper by Mr. Litchfield on the "Size and Inflation of Pneumatic Tires" is of interest to tire manufacturers, as well as to automobile manufacturers and users of motor cars. Mr. Litchfield's theory is that a pneumatic tire is practically incapable of supporting compressive stress so that any load which is supported by the tire must be carried by a variation of the tension of the side walls of the pneumatic. The flattening of the tire on the ground relieves the tension on the walls of the flattened portion, but by increasing the air pressure in the other parts of the tire, this flattening increases the tension on the walls of the rest of the tire. The area of contact of a tire on the ground is about equal to the load multiplied by the air pressure in the tire, and consequently the flattening of the tire on the ground varies with the load, except in so much as the element of air pressure intervenes to prevent this flattening. It is therefore possible to regulate the distortion or flattening of a tire by varying the air pressure and the load.

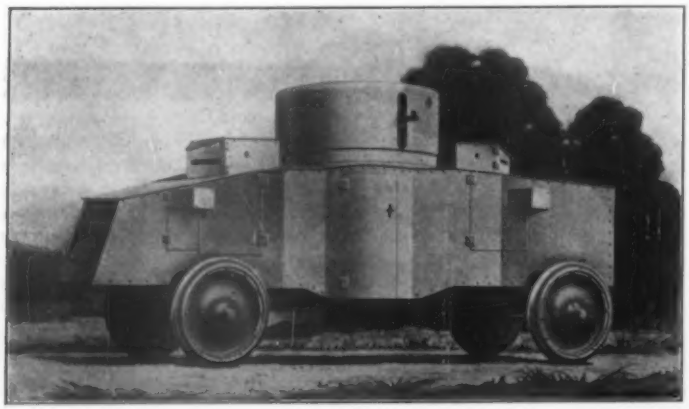


Regardless of the size of a tire, for a given weight pneumatic tires cover approximately the same surface of contact on the ground, but the smaller the tire the greater the distortion it must undergo to cover this given surface. A smaller tire will therefore have to distort itself more than a larger one in order to support a given weight. The greater the distortion the greater the wear on the tire. When the owner of a car finds that his tires are flattening too much, and therefore suffering extraordinary wear, he naturally will endeavor to prevent this by pumping more air into the tires to make them harder. This means a reduction of the resiliency of the tires, hard riding and the consequent undue wear of the machine and its mechanism. But tires must not be too big, for excessively large tires not only mean unnecessary cost, but futher increase fuel consumption and wear and tear on the car.



Mr. Litchfield treats at length the relation between tire wear and weight carried, tire dimensions and pressure of inflation. He submits general approximate laws of tire wear and a logical schedule showing the proper relation between air pressure, tire size and weight carried.

Fully 33 per cent. of American cars are turned out by their manufacturers equipped with tires doomed to be overloaded. This is a mistake that costs car owners millions each year.



UNDERWRITERS' LABORATORIES 1915 BULLETIN.

The Underwriters' Laboratories, Inc., whose work in connection with the testing of materials and appliances used in the prevention of suppression of fires is well known to all manufacturers engaged in this line of production, has just issued its 1915 bulletin. The work of this organization is carried on under the general direction of the National Board of Fire Underwriters, its principal plant being located at Chicago, where it occupies a three-story and basement building containing about 45,000 sq. ft. of floor space, and valued, with equipment, at approximately $200,000. It maintains a branch plant in New York City for the examination and testing of electrical devices, besides offices in the principal large cities of the United States, in Canada and in England. The pamphlet is illustrated throughout with reproductions of photographs of the Chicago plant and the equipment of its various departments.

The Editor's Book Table.

THE CEYLON HANDBOOK AND DIRECTORY AND COMPENDIUM of Useful Information for 1914-1915, with Statistical Summary for the Colony, and Planting Review. Compiled and edited by the staff of the "Ceylon Observer." Published by A. M. & J. Ferguson. [Octavo, 1,728 pages; cloth. Price, £1, 1s. Maclaren & Sons, Limited, London.]

IT is fifty-five years since the first Ceylon Handbook and Directory was issued. Each year this volume has increased in size, until the present volume, covering the year 1914-1915, has 1,728 pages, besides many additional pages devoted to indexes and other addenda, making a volume of over 1,800 pages. While this book covers everything of interest connected with Ceylon, it naturally devotes a great deal of space to rubber production, which in a few years has developed into such a great industry in that island. Perhaps the best way to show the rapidity of this increase is by giving the acreage planted in rubber, the bearing acreage and the exports. A table showing this information and covering the last ten years is given below:

ACREAGE AND EXPORTS OF CEYLON RUBBER PLANTATIONS.

	Planted acres.	Bearing acres.	Exports—Tons.
1904	25,000	600	35
1905	40,000	1,000	75
1906	100,000	2,000	150
1907	150,000	2,500	250
1908	180,000	4,000	400
1909	184,000	5,500	681
1910	203,900	20,000	1,600
1911	215,000	35,000	3,194
1912	217,000	85,000	6,700
1913	220,000	150,000	12,515
1914	222,000	170,000	17,000
1915	224,000	186,000	20,000

While the present planted area in the above table is placed at 224,000 acres, the editors state elsewhere that the returns received in the latter part of 1914 indicate that there is at present a total rubber area of 240,500 acres.

The book is full of interesting tabulations, but there is space here to reproduce only one more. This table shows the yields of trees from four to ten years of age—as estimated by one of the local publications largely devoted to planting—in Ceylon and Malaya:

RUBBER YIELD OF TREES OF DIFFERENT AGES.

Age of trees. Years.	Yield, in pounds, per single tree.	Yield per acre, of 120 trees, in pounds.
4	¾	90
5	1	120
6	2	240
7	3	360
8	4½	460
9	6	720
10	7	840

It may be added that the editors intimate that this estimate of yields appears to them rather large—as it undoubtedly will to most people familiar with the subject.

The volume contains, of course, a list of all the rubber plantations in Ceylon, together with all the essential facts pertaining to them. It gives also the distribution of Ceylon rubber—how much goes to the various importing countries. In fact there is no sort of information relating to the Ceylon rubber industry that will not be found in this handbook.

SIXTY AMERICAN OPINIONS ON THE WAR. LONDON. T. FISHER Unwin, Limited, 1 Adelphi Terrace, W. C. [8vo. 166 pages.]

As the name implies, this volume contains extracts from speeches and writings of sixty prominent Americans on the European war. As it is published in London, the inference may safely be drawn that these opinions are uniformly favorable to the Allies. The particular reason for referring to the book in this publication lies in the fact that one of the longest extracts in the volume is taken from an article by a well-known rubber man, Adelbert Henry Alden, of Aldens' Successors, Limited, which was published in the "Westminster Gazette," London, on March 19 last. Mr. Alden is referred to by the editor as "a direct descendant of John Alden, of the 'Mayflower.'"

Mr. Alden makes the statement that there are "no neutrals, individually, in America today. No one's feelings can be neutral; the government is—must be for the present—*that* is politics." He continues that the reason why a neutral condition of mind is impossible to Americans can be found in the prevailing feeling that this war is a contest between an armed empire with vast national ambitions on one side and democracy, seeking only to pursue peaceful avocations, on the other side. He makes a plea for preparedness, saying that while in the days of Washington his advice to keep free of European alliances was excellent, because it was possible, now it is no longer possible. He continues: "There were two worlds. America was living in one of them, far removed from the congested troubles of Europe which the inhabitants of America had escaped from. But times have changed. Science has changed the world into one world. What affects one country affects all countries; not next week, next month, next year, but within the hour. The American people have a subconsciousness of this, but they don't *know it*. They don't yet *know* they have more than sympathy for the Allies. They don't yet *know* that if the Allies lose, America's day of trial will come."

In his part authorship of this volume Mr. Alden appears in a representative group of America's most distinguished men. Among the other Americans, for instance, whose words are quoted, are Theodore Roosevelt, William H. Taft, Joseph H. Choate, Charles William Eliot, Robert Bacon, William Dean Howells, John G. Hibben and Albert Shaw.

PROCEEDINGS OF THE THIRD INTERNATIONAL CONGRESS OF Tropical Agriculture. Edited by T. A. Henry, T. L. McClintock Bunbury and Harold Brown, Honorary Secretaries of the Congress. [London: John Bale, Sons & Danielsson, Limited. Price, 10s. net.]

This volume contains abstracts of the 150 or more papers, from authorities in 50 different countries, read at the Third International Congress of Tropical Agriculture which, it will be remembered, was held in June, 1914, at the Imperial Institute, London, concurrently with the International Rubber and Allied Industries Exhibition; also reports of the discussions on many of the principal problems connected with tropical agriculture.

The subject of Technical Education received considerable attention at this congress, the claims of the West Indies as a competitor with Ceylon being ably urged by Professor Carmody, of the Trinidad Department of Agriculture, and by Harold Hamel Smith, editor of "Tropical Life"—the latter stating that if the United Kingdom means to enjoy that share of the ever-increasing commerce of Latin-America to which it is entitled, two colleges must be established, one in the East, say in Ceylon, and one in the West Indies, say in Trinidad. R. N. Lyne, director of the Department of Agriculture, Ceylon, outlined the educational methods adopted by that department, the subject of tropical agriculture being included in the public school curriculum.

The paper by W. A. Williams, of the North British Rubber Co., Limited, on "The Factors Which Determine Variation in Plantation Rubber, with Special Reference to Its Uses for Manufacturing Purposes," is given in full, being of interest alike to rubber producers and manufacturers.

Another paper on rubber, abstracted in this volume, is on "Increasing the Yield of *Funtumia* by the Sparano Tapping Method in the Belgian Congo," by M. Gisseleire, of the Colonial Office, Brussels. This new method is described as similar to the Christy method, but the full herring-bone is not made in one operation; the tapping is completed in 9 or 10 days, with a few new laterals traced each day. The yield produced by this method is said to be twice that collected by ordinary herring-bone tapping, and

four times that produced by the Schulze system of vertical incisions.

The "Proceedings" also includes a paper by Frank Shuman on "The Utilization of Sun Power for Irrigation and Other Purposes in Tropical Agriculture," in which he states that this power can be used for any purposes whatever. He estimates the cost of installation of such plants at about £31 per horsepower and claims that the cost of producing power by this means would be the same as if coal were less than 10*s.* per ton, whereas the price of coal in many parts of the tropics is quoted at £2, 10*s.*

Other subjects on which papers were read and on which discussions took place were: Organization of Agricultural Departments in Relation to Research; Agricultural Credit Banks and Co-operative Societies; Sanitation and Hygiene on Tropical Estates; Legislation Against Plant Diseases and Pests; Cotton and Cotton Cultivation, and Fertility of Soils in the Tropics. The fact that these papers were prepared and discussed by authorities on tropical agriculture from all over the world makes the book of value as a record of expert opinion on many of the tropical agricultural problems now of particular interest.

TABLES OF PROPERTIES OF OVER FIFTEEN HUNDRED COMMON Inorganic Substances. By Wilhelm Segerblom, A.B., Instructor in Chemistry at the Phillips Exeter Academy. 1909, Exeter, New Hampshire. Exeter Book Publishing Co. [Cloth, 8vo, 144 pp. Price $3, postpaid.]

The author designed this work as an aid for students in analysis in corroborating their results. He groups the metals in six sections, according to Fresenius, and arranges the descriptive tables of properties on a very rational and convenient plan, facilitating reference. With the arrangement used it is possible not only to find all the salts of any one metal together, but also to compare any salt of the metal in question with the corresponding salt of each of the other numbers of the group to which the metal belongs. It is possible also to compare the salts of any group with the corresponding salts in the other five groups. The properties given include state, color, luster, crystalline form, deliquescence, efflorescence, stability in air, action on test paper, melting point, behavior when heated, solubility in water, alcohol and acids, and any other properties characteristic of the substance in hand. For convenience the formulae, chemical names and the common names are all given. The index is designed to locate a salt when only the common name is known.

The work is a valuable addition to the analyst's library.

RUBBER IMPORT AND EXPORT REGULATIONS.

A NUMBER of developments occurred during the month of June, relating to the imports of crude rubber from the East and to the export of rubber manufactured goods. In some respects the regulations have been slightly relaxed, and in other respects they have been somewhat increased.

RUBBER GOODS MAY NOW BE SHIPPED TO ITALY.

The British Consul General at New York gave notice on May 28 that the British Foreign Office, in view of the fact that Italy had joined the Allies, had consented to lift the embargo on rubber shipments to Italy. He authorized the altering of the guarantees given the British government by the insertion of the words "or Italy" after the word "Russia" in the sixth paragraph of the guarantees which were agreed upon last January between the British government and the representatives of the Rubber Club. When this change is made the paragraph will read:

"We will not sell any manufactured or partly manufactured rubber goods to any person in the United States without satisfying ourselves that there is no intention on his part to export, or resell the same for exportation, to any countries in Europe other than Great Britain, France, Russia or Italy, otherwise than by shipping to the United Kingdom and reshipping from there, under license to be obtained for export therefrom."

PROCEDURE IN CASE RUBBER IS REJECTED.

On the third of June, Secretary Vorhis, of the Rubber Club, sent a circular addressed to all the members of the rubber trade regarding the method of procedure in case for any reason rubber which had been released for their account was rejected. The following paragraphs give the essential matter of the circular: "The attention of manufacturers is called to the fact that they are accountable for rubber released for their account, and that in case of rejection of rubber, in whole or in part, the manufacturers must immediately notify the secretary of The Rubber Club of America, Inc. In such cases, the secretary must promptly receive from the seller of the rubber either a new guarantee from a new customer for the delivery of the rejected rubber to them, or the seller must put the parcel in trust (pending the resale of same) with The Rubber Club of America, Inc."

EXPORTING GOODS CONTAINING ONLY A SMALL QUANTITY OF RUBBER.

The British government has announced that the rubber guarantee signed by rubber manufacturers, stipulating that shipments of rubber manufactured goods to neutral European countries should be made via England, is not intended to apply to articles of personal or household use containing only a small quantity of rubber, such, for instance, as suspenders, garters and typewriters.

The Control Committee of The Rubber Club, however, suggests that even in such cases, manufacturers notify the British Consul General at New York of all such shipments which they intend to make direct to neutral European countries.

CLEARING PLANTATION RUBBER FROM THE DUTCH EAST INDIES.

On June 24, the secretary of the Rubber Club sent a circular to crude rubber importers, brokers and dealers, referring to the import of rubber from the Dutch East India plantations, in which the following paragraph appears: "Realizing that the British government wishes the most accurate record possible kept of plantation rubber arriving in this country from the Dutch East Indies, the Rubber Control Committee has unanimously passed a resolution recommending that all crude rubber importers, brokers and dealers in this market file the British rubber guarantees for all such rubber with The Rubber Club of America, Inc., and have its disposition recorded in exactly the same manner as though the rubber had been consigned to H. B. M., Consul General at New York."

THE EMBARGO FUND PAYS A DIVIDEND.

It will be recalled that when the work of removing the embargo on plantation rubber was first undertaken by the Rubber Club last January, it asked for voluntary contributions from members of the club to defray the necessary expenses of the Embargo Committee in conducting its negotiations with the State Department and the British government. As the fees received in connection with the work of the committee have for some time fully covered the expenses involved, the Executive Committee voted at its meeting June 11, 1915, to refund *pro rata* to the contributors the unexpended balance now remaining of that fund.

The total amount subscribed was $3,118.96. The expenses of the committee amounted to $1,745.32, leaving a balance of $1,373.64. This was returned to the original contributors by the treasurer of the club on June 24 and amounted to a refund of practically 44 per cent.—quite a handsome dividend.

The India Rubber, Gutta Percha & Telegraph Works Co., Limited, of Silvertown, England, has announced that owing to the increased cost of production because of the higher prices of materials and labor consequent upon the war, it has been found necessary to make a 10 per cent. advance in the price of its gutta percha, india rubber, silk and cotton covered wires.

THE SIXTEENTH ANNUAL RUBBER CLUB OUTING.

FOR several years the Rubber Club has been looking toward the Vesper Club as an ideal place to hold its summer outing. It is, in the first place, practically as accessible as the Country Club at Brookline, for example. It is delightfully situated on the banks of the Merrimac River, and has golf links that are noted throughout New England. There are tennis, squash and racquet courts—indeed facilities for all out-of-door sports. The

CLUB HOUSE OF THE VESPER CLUB, WITH TENNIS COURTS IN FOREGROUND.

club house is commodious and elegant. It is really quite an honor for the members of the Vesper Club to give up their home and grounds for a whole day to an outside organization, and is something that they rarely do.

With frequent train service from Boston to the club grounds and specials for the club members; with active, capable men at the head of the Sports, Entertainment and Dinner Committees, the outing, to be held July 14, promises to be the best yet. And if the responses that are rapidly coming in are a criterion it will be the biggest yet.

A special train will leave North Station, Boston, at 1 p. m. sharp on the 14th, and will arrive at the grounds in less than an hour. A buffet lunch will be served en route. An excellent program has been arranged by the Outing Committee. There

A CORNER OF THE VESPER CLUB GROUNDS.

will be a tennis tournament, consisting of inter-firm doubles and singles, with an entrance fee of fifty cents. Clarence H. Low will be in charge. The golf tournament will consist of a driving contest and clock golf—entrance fee one dollar, M. G. Hopkins in charge. Golf cards must be in by 2 p. m. There will also be quoits, races and water sports, bathing suits being furnished. The Lynn Cadet band will supply the music. The train will return to Boston at 9 p. m. Tickets, which are $5, include everything excepting tournament entrance fees.

MEETING OF THE EXECUTIVE COMMITTEE OF THE RUBBER CLUB.

A MEETING of the Executive Committee of The Rubber Club of America, Inc., was held at the Union League Club, New York, June 11. There were present George B. Hodgman (chairman), Frederic C. Hood, Henry C. Pearson, Van H. Cartmell, Harvey C. Firestone, William E. Bruyn, Sidney S. Meyers and H. S. Vorhis (secretary). Mr. Meyers was appointed general counsel for the club. Harry T. Dunn, who was elected director at the annual meeting, being unable to serve, Harry G. Fisk was elected in his place. The Embargo Committee presented a financial report through its treasurer. This committee in the early days of the embargo collected funds by subscription from the firm members for defraying current expenses. The members of the committee were compelled to make many trips to Washington, and Mr. Work was sent to Europe in the interest of the rubber trade. The amount of money colulected was $3,318.96. It was later decided to return the money collected from the rubber reclaimers, and this amount, $200, was deducted, leaving $3,118.96 available for disbursement. The total expense as audited by the committee was $1,745.32, leaving a balance of $1,373.64, which is to be refunded *pro rata* to the original subscribers.

FIRM MEMBERS.

R. J. Caldwell Co., Inc., New York.
Frederick H. Cone, New York.
Continental Rubber Co of New York, New York.
J. P. Devine & Co., Buffalo, New York.
J. Frank Dunbar, Boston.
Frazar & Co., New York.
Gibney Tire & Rubber Co., Conshohocken, Pennsylvania.
Gove & French, Inc., New York.
Greensburg Tire & Rubber Co., Greensburg, Pennsylvania.
E. D. Hewins, Inc., Boston.
Gustave Kush, New York
J. H. Lane & Co, New York.
Michelin Tire Co., Milltown, New Jersey
L. J. Mutty Co., Boston.
The Savage Tire Co., San Diego, California.
Simplex Wire & Cable Co., Boston.
A. Schrader's Son, Inc., Brooklyn, New York.

ASSOCIATE MEMBER.

Harry M. Hope, Boston.

THE RUBBER CLUB MOVES INTO LARGER QUARTERS.

As may well be imagined, the work of the Rubber Club of America, Inc., since it undertook the straightening out of the embargo difficulty with England and kindred matters of interest to the club members, has greatly increased, necessitating a clerical force of considerable size. The offices recently taken in the Whitehall building, 17 Battery Place, New York, have already been outgrown, and about the middle of June the club moved into more commodious quarters in the same building. The new offices are on the fourth floor, and consist of private offices for the secretary and the chief accountant, a room of suitable dimensions for committee meetings, and a large room adequate for the use of the clerical force.

The Rubber Goods Manufacturers' division and the Rubber Sundries Manufacturers' division of the club are now engaged in carrying out some important work for their particular branches of the trade. The government of Canada has recently decided to allow scrap rubber to be exported to the States, and all these increased activities have compelled the club to move into these more adequate quarters.

Speaking of the import of Canadian scrap, this rubber, in carload lots, is to be consigned to the New York British consul, and cleared after the usual guarantees made by the importer have been approved by the club. A charge of 50 cents a ton is made for this service.

News of the American Rubber Trade.

THE BOSTON BELTING CO. EQUIPS A LABORATORY.

THE Boston Belting Co. is about to equip a laboratory and testing department at its works. Mr. George Ellinwood, an experienced rubber chemist, will be in charge. Although this is a new addition to the resources of the company, it is worthy of note that their experimental and development work antedates that of practically every other American rubber company. It is an interesting and authentic fact that Charles Goodyear conducted much of his experimental work in compounding and vulcanizing in the original rubber factory in Roxbury which in later years developed into the Boston Belting Co.'s plant located on the same site. In this connection it is stated that the equipment of the new laboratory will include the original table used by Goodyear in his studies and experiments, and that the relic is still in usable condition.

ATLANTIC RUBBER COMPANY MOVES INTO NEW QUARTERS.

The Atlantic Rubber Co. has just moved from its former location at Hyde Park and established itself in more commodious quarters at Atlantic, Massachusetts. The new plant, which covers a large part of two acres of land, located near the railroad, with spur-track facilities, is thoroughly modern in construction and equipment and will, the company believes, provide for expansion for some time to come. This company manufactures various patented and trade-mark products, druggists' sundries, hospital sheetings and rubberized fabrics of all kinds, specializing in rubber soles and heels and molded goods.

A CHEMICAL INDUSTRIES EXPOSITION.

During the week commencing September 20 there will be held at New York, in the Grand Central Palace, a National Exposition of Chemical Industries. This exposition, in which the rubber trade is to be represented, has been organized to demonstrate the extent and importance of the chemical industries in America and to show to American enterprise both the developments that have taken place and the importance of further activities in this direction. An exhibition of the products, processes and apparatus manufactured and in use by American firms is expected to awaken an interest in and appreciation of the possibilities in the chemical industry and to contribute to an exchange of ideas between the pure and applied technologists.

Among the prominent chemists who compose the advisory committee are R. P. Perry, of the Barrett Manufacturing Co., and T. B. Wagner, of the Corn Products Refining Co., both of 17 Battery Place, New York.

THE PENNSYLVANIA COMPANY EXTENDS ITS TIRE GUARANTEE.

Following the recent official tests of Vacuum Cup tires, made by the Automobile Club of America, in which an average service of 6,760 miles was given by 9 tires in use on heavy vehicles, with three tires exceeding 8,900 miles' service each, the Pennsylvania Rubber Co., of Jeannette, Pennsylvania, which makes this tire, has extended its guaranteed mileage from 4,500 to 6,000 miles. This guarantee will apply also to all Vacuum Cup tires at present in service.

The eleventh annual picnic of the Athletic Association of this company was held on June 5 at a near-by resort, being attended by a large number of employes, with their families and friends. The program included various sports and dancing.

RUBBER COMPANIES ENCOURAGE ENLISTMENT.

At a meeting of the Executive Committee of the United States Rubber Co., held June 17, it was voted to approve of all employees of the United States Rubber System joining local militia and naval reserve companies.

It was also voted that the pay of such employees should be continued while engaged in militia duties, and that the annual tour of duty would not interfere with their regular vacations.

The Hodgman Rubber Co took similar action some weeks ago, when the board of directors passed a resolution that all those in the company's employ who enlisted in the militia should be granted time for ordinary military service with full pay and without deducting the time occupied in this service from the regular vacation period.

RUBBER COMPANY DIVIDENDS.

The American Chicle Co., of New York, has declared a quarterly dividend of 1½ per cent. on its preferred stock, payable July 1 to stockholders of record on June 25.

The Boston Woven Hose & Rubber Co., of Cambridge, Massachusetts, paid on June 15 semi-annual dividends of 3 per cent. on its common and preferred stocks.

The Goodyear Tire & Rubber Co., of Akron, Ohio, has declared a quarterly dividend of 1¾ per cent. on its preferred stock, payable July 1 to stockholders of record on June 20.

The Kelly-Springfield Tire Co., of New York, has declared a quarterly dividend of 1½ per cent. on its 6 per cent. preferred stock and a quarterly dividend of 1¾ per cent. on its 7 per cent. preferred stock—both payable July 1 to stockholders of record on June 15.

The Rubber Goods Manufacturing Co., of New York, paid on June 15 a quarterly dividend of 1¾ per cent. on its preferred stock and a quarterly dividend of 1 per cent. on its common stock.

The Boston Belting Co., of Boston, has declared a quarterly dividend of $2 per share, payable July 1 to stockholders of record on June 15.

The McGraw Tire & Rubber Co., of East Palestine, Ohio, paid on June 1, a semi-annual dividend of 5 per cent. on its common stock.

The Washburn Wire Co., of Providence, Rhode Island, has declared a quarterly dividend of 1¾ per cent. on its preferred stock, also a quarterly dividend of 2 per cent. on its common stock—payable July 1 to stockholders of record on June 18.

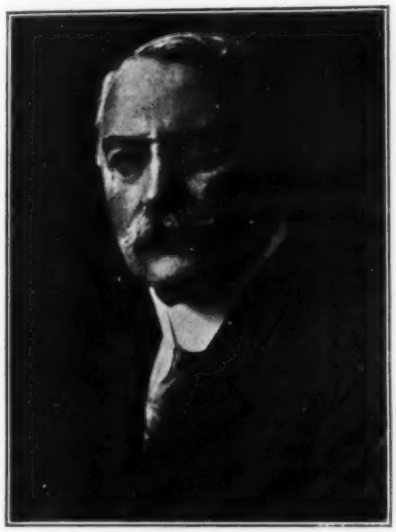
RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of the shares of rubber manufacturing companies on June 25 last are furnished by John Burnham & Co., 31 Nassau street, New York, and 41 South La Salle street, Chicago:

	Bid.	Asked.
Ajax-Grieb Rubber Co., common	300	...
Ajax-Grieb Rubber Co., preferred	101	...
Firestone Tire & Rubber Co., common	503	510
Firestone Tire & Rubber Co., preferred	111	...
The B. F. Goodrich Co., common	51	52
The B. F. Goodrich Co., preferred	101	102
Goodyear Tire & Rubber Co., common	268	273
Goodyear Tire & Rubber Co., preferred	105	106¼
Kelly-Springfield Tire Co., common	159	162
Kelly-Springfield Tire Co., first preferred	86	87
Kelly-Springfield Tire Co., second preferred	160	165
Miller Rubber Co., common	185	187
Miller Rubber Co., preferred	104	106
Portage Rubber Co., common	35	39
Portage Rubber Co., preferred	92	93
Swinehart Tire & Rubber Co.	77	79
United States Rubber Co., common	53⅛	55
United States Rubber Co., first preferred	106	107½

VICE-PRESIDENT VAN H. CARTMELL OF THE RUBBER CLUB.

AT the last annual election of officers of the Rubber Club of America, Inc., which took place on April 21, Mr. Van H. Cartmell, president of the Kelly-Springfield Tire Co., was elected one of the vice-presidents. This is a compliment that any man in the trade might be pleased to receive, and, conversely, the choice of Mr. Cartmell for this position shows that the Rubber Club is still most discriminating in the matter of official selection.



VAN H. CARTMELL.

Mr. Cartmell comes logically by the presidency of his company, as he originated, some fifty years ago or so, in the distinctively presidential state of Ohio. He started his commercial career while a young boy as a clerk in a store at Springfield, his native place. The proprietor valued his services at $5 a week. But the young clerk thought perhaps there was more money to be made outside, so he soon connected himself with a manufacturing house, and in a few years' time was its manager.

Following the precedent set by many distinguished westerners, when he reached years of sound discretion he came East, and in 1894 he became attached to the Consolidated Rubber Tire Co., now the Kelly-Springfield Tire Co., as manager of its Boston office. Two years later he was put in charge of the larger office in New York, and in 1903 he was made president of the company, a position which he still holds.

That the company has been successful under President Cartmell's administration is obvious from its present position in the trade. And the reasons of its success under his management are not far to seek. Integrity, honesty and sanity—by which is meant that sound judgment that keeps in the profitable path and avoids all uncertain ventures—have marked Mr. Cartmell's administration. Incidentally, he has that fine gift of urbanity which not only leads to prosperity in business, but especially means social success, and is a most valuable asset for an officer of an organization like the Rubber Club.

While Mr. Cartmell has devoted himself assiduously to tire manufacture for the last quarter century, and is an expert in this art, he does occasionally relax sufficiently to take in a ball game—an honest American taste which his residence in New York City permits him from time to time to cultivate.

RUBBER SHIPMENTS TO ATLANTIC AND PACIFIC PORTS.

The Rubber and Tin Exports Committee, which is a division of the War Trade Department of Great Britain, recently issued a statement through Lord Balfour, chairman of the committee, to the effect that arrangements have now been made so that plantation rubber can be shipped to any Atlantic and Pacific ports of the United States. The rubber must be consigned in the former instance to the British Consul at New York and subject to the customary rules. When shipped to Pacific ports the rubber is cleared through the British Consul at San Francisco.

PERSONAL MENTION.

Frederick H. Jones, treasurer of the Tyer Rubber Co., of Andover, Massachusetts, expects to start within a few days for the San Francisco fair. He will visit San Diego and other places in California, returning East about the first of September.

Henry C. Herring, sales manager of the New York Rubber Co., who has been ill for the last three months, is improving in health and hopes to return to his official duties within a short time.

Frederic H. Sanford, who was formerly connected with A. H. Alden & Co., Limited, Manaos, and who has been passing the winter in Cuba, has recently returned to the United States and is now at his home in West New Brighton, New York.

John F. Lanier, who formerly handled Diamond tires for The B. F. Goodrich Co. in the southwest, with headquarters at St. Louis, has become associated in a similar capacity in another section with the Norwalk Tire & Rubber Co., of Norwalk, Connecticut.

Nicholas F. Brady, prominent in the directorate of the United States Rubber Co., is president of the newly organized Broadway Subway & Home Boroughs Car Advertising Co. The offices of this company are at 31 Nassau street, New York, and its object is to handle the advertising and news stands on the system operated by the Brooklyn Rapid Transit Co., in which Mr. Brady is also interested.

Dr. Eugenio Dahne, who is at the head of the Brazilian section of the Panama-California Exposition at San Diego, California, has just returned from Brazil with a large exhibit of the products of the states of Sao Paulo, Rio Grande do Sul, and Rio de Janeiro. This exhibit will consist in part of 52 cases of fine Pará rubber that figured in the rubber exposition at Rio de Janeiro two years ago, and was to go to the London exhibition last year. For some reason it did not get to London and will now go to San Diego and be sold when the exposition closes.

W. E. Adams, for some time past connected with the sales department of the Ford Motor Co., has joined the staff of the Lee Tire & Rubber Co. of New York, which is the eastern sales branch of the Lee Tire & Rubber Co., of Conshohocken, Pennsylvania. The president of the New York company, W. B. Fewell, is also a former automobile man, having served for some time as New York manager for the Oakland Motor Co.

Col. Samuel P. Colt, president of the United States Rubber Co., expects soon to take a trip across the continent to the Panama-Pacific Exposition at San Francisco.

Samuel Norris, secretary of the United States Rubber Co., expects to pass the summer with his family in one of the cottages of the Adirondack League Club.

Waldemar Scholz, one of the prominent rubber exporters of Brazil, with headquarters at Manaos, is spending a couple of months at Petropolis, a beautiful summer resort near Rio de Janeiro.

William Johnstone, brother of J. T. Johnstone, the rubber importer of 22 William street, New York, has just been commissioned a lieutenant in the famous Black Watch (42nd Royal Highlanders). Miss Johnstone, a sister, who has been in the Red Cross service in England, has just left for foreign service.

At the semi-annual meeting of the Society of Automobile Engineers held in June, P. W. Litchfield, factory manager of the Goodyear Tire & Rubber Co., Akron, presented a valuable paper on the subject of "Size and Inflation of Pneumatic Tires." The paper is a careful study of theoretical considerations and practical conditions affecting the durability of tires. Tire wear, overloading and proper inflation are scientifically discussed, and a basis presented for a logical schedule of tire inflation and loading.

THE SILVERTOWN CORD TIRE WINS ENCOMIUMS OF RACING DRIVERS.

The Silvertown cable cord tire, made by The B. F. Goodrich Co.,of Akron, Ohio, figured conspicuously in the Speedway Race of 500 miles at Indianapolis, Indiana, May 31, not only the winning cars but every car that finished in the contest being equipped with these tires. DePalma, the winner in the event, is quoted as stating that "There is nothing like them."

NEW INCORPORATIONS

Ashley Rim Co., Inc., May 22, 1915; under the laws of New York; authorized capital, $10,000. Incorporators: Robert W. Ashley, Ernest G. and Russel H. Kittel—all of 505 Fifth avenue, New York City. To manufacture auto supplies and appliances, etc.

Bonnite Insulator Co., Inc., May 25, 1915; under the laws of New York; authorized capital, $4,000. Incorporators: George H. Clark, 386 South Belmont avenue, Newark, New Jersey; Albert H. and Paul Bergman, 62 West One Hundred and Twenty-fourth street, New York City. To manufacture automobile ignition insulating cable, etc.

Burford & Co., Limited, May 25, 1915; under the laws of New York; authorized capital, $2,000. Incorporators: Henry C. Burford and Francis C. Lord, 8 Bridge street, and Thomas H. Wight, 30 Church street—both in New York City. Automobiles, rubber goods, etc.

Cortland Tire & Rubber Co., May 25, 1915; under the laws of New Jersey; authorized capital, $100,000. Incorporators: Herbert V. Hardman and George C. Sleeth, Belleville, and Walter B. Hopping, Montclair—both in New Jersey. To manufacture, buy, sell and deal in rubber tires, tubes, rubber and rubber goods of every kind, etc.

Crawfordsville Rubber Co., May 6, 1915; under the laws of Indiana; authorized capital, $5,000. Incorporators: Charles A. Westfall and William M. White, Crawfordsville, and Henry B. Coats, Veedersburg—both in Indiana. To manufacture rubber goods generally, including auto. tires and accessories.

Falls Tire Co., Inc., June 14, 1915; under the laws of New York; authorized capital, $15,000. Incorporators: Henry Weiss, 600 West One Hundred and Sixty-ninth street, Agnes G. Sanger, 1947 Seventh avenue, New York City, and Marcella Sanger, 93 Remington avenue, Jamaica, New York. To manufacture tires and rubber goods.

Fay Motor Fabric Supply Co., Inc., May 8, 1915; under the laws of New York; authorized capital, $20,000. Incorporators: Elmer M. Kimbark, Grey M. Hessler and Anna D. Moritz—all of 27 William street, New York. To manufacture fabrics used in the automobile trade, etc.

Kansas City Tire & Rubber Corporation, May 28, 1915; under the laws of New York; authorized capital, $335,000. Incorporators: Leopold M. Lehr, Ralph Atkins and Joseph A. Arnold—all of 22 William street, New York City. General tire and rubber manufacturing business.

Plainfield Auto Tire Co., May 29, 1915; under the laws of New Jersey; authorized capital, $50,000. Incorporators: Edward J. and Margaret Way, 514 Arlington avenue, Plainfield, and Irving R. Stebbins, 64 Grandview avenue, North Plainfield—both in New Jersey. To manufacture, buy, sell and deal in automobiles, tools and supplies of all kinds used in connection with automobiles, etc.

Price Rubber Co., H. A., May 13, 1915; under the laws of Ohio; authorized capital, $15,000. Incorporators: H. A. and Mary V. Price, E. E. and Margaret McGalliard, and John Rowley. To buy and sell automobile, motorcycle and bicycle tires, rims and tubes.

Punctureless Auto Tire Co., The, May 14, 1915; under the laws of Ohio; authorized capital, $100,000. Incorporators: D. W. Alexander, Charles L. Rempes, Samuel A. Messner, W. F. Wotring and W. L. Keller. To manufacture automobile tires and accessories.

Reliance Tire & Rubber Co., June 3, 1915; under the laws of New Jersey; authorized capital, $50,000. Incorporators: Cornelius D. McGiehan, 2 Pearsall avenue, Jersey City, New Jersey; Guy W. Lindsay, 236 Washington street, and Elmer E. Burdick, 115 Broadway, New York City. To manufacture, sell, import, export and otherwise deal in tires made wholly or partially of rubber and fabric, and generally deal in and manufacture tires for vehicles.

Savoie Rubber Co., June 2, 1915; under the laws of Massachusetts; authorized capital, $50,000. Incorporators: Joseph Savoie and Charles T. Roy, Central Falls, Rhode Island, and William G. Burns, 27 State street, Boston. To manufacture and deal in articles made of rubber, in whole or in part, and in compounds, compositions or mixtures containing rubber in any form.

Solo Tire Co., Inc., June 12, 1915; under the laws of New York; authorized capital, $100,000. Incorporators: John W. Suling, 107 West Eleventh street; Lavinia Leitch, 226 West One Hundred and Twenty-third street, New York City, and Evelyn F. Price, 439 East Eighth street, Brooklyn, New York. To manufacture tires and auto parts.

Spitler Puncture Plug Co., Inc., May 25, 1915; under the laws of New York; authorized capital, $4,950. Incorporators: Joseph B. Dulany, Hotel Anderson, 102 West Eightieth street; Thomas N. Tull, West Washington Market, New York City, and John Spitler, Port Washington, New York. To manufacture bicycle accessories, tire plugs, automobile supplies, etc.

Supreme Tire & Rubber Co., Inc., June 11, 1915; under the laws of New York; authorized capital, $10,000. Incorporators: Herbert T. Mahan, Cold Spring Harbor; Baldwin C. Young, Huntington, and Robert S. Snevily, 81 Macon street, Brooklyn—all in New York. General tire and rubber goods manufacturing business, auto. equipment, etc.

Tire Sales Co., Inc., May 4, 1915; under the laws of Maryland; authorized capital, $5,000. Incorporators: Arthur P. Mosby, Carolyn B. Donley, W. F. Kempel Jones. Location of principal office, Baltimore, Maryland. To sell automobile tires, tubes and accessories, etc.

Trent Raincoat Co., June 3, 1915; under the laws of New Jersey; authorized capital, $50,000. Incorporators: William O. and Arthur J. Anderson, and Frances E. Quigley—all of Trenton, New Jersey. Location of principal office is at the plant of L. M. Anderson Co., New York avenue, Trenton. To make, purchase and sell raincoats, waterproof garments of all descriptions, etc.

Traveller Tire & Tube Co., Inc., June 16, 1915; under the laws of New York; authorized capital, $50,000. Incorporators: Samuel Marx, 233 Broadway; Louis M. Barman and Louis Bayer, 117 Leonard street—both in New York City. To manufacture tires and rubber goods.

United States Rubber Co. of New England, May 13, 1915; under the laws of Massachusetts; authorized capital, $50,000. Incorporators: William H. Porter, 110 Federal street; Clarence L. Weaver, 77 High street, and Henry C. Kalish, 218 Congress street—all in Boston. To deal in rubber goods and footwear of all kinds.

Vulcan Recovery Co., May 21, 1915; under the laws of New Jersey; authorized capital, $150,000. Incorporators: Herbert Wright Backes, J. Conner French and Jerome Klinkowstein—all of Trenton, New Jersey. Location of principal office is May street, Township of Ewing, Mercer County, New Jersey. To refine and reclaim crude rubber and waste materials, and to manufacture and compound the same into raw materials to be used in the manufacture of rubber and other goods.

THE CONSULTING CO.

An organization known as The Consulting Co., with headquarters in the Central Life Insurance building, Cincinnati, Ohio, has recently been formed for the purpose of assisting rubber manufacturers in the solving of the various problems which confront them from time to time. The new company specializes in the planning of equipment, in locating defects in factory operation, and in increasing manufacturing efficiency. The company has three principal departments, under the respective captions of Mechanical, Laboratory and Experience. The mechanical department is in charge of B. L. Baldwin, a mechanical engineer and a member of a number of recognized engineering bodies, including the American Society of Mechanical Engineers. This department covers plans, specifications, building structure, machinery, power economy, estimate of cost, the economical placing of equipment and such other matters as pertain to the operation of a rubber plant.

The laboratory is under the direct personal supervision of Joseph W. Ellms, a member of the American Chemical Society and the American Society of Civil Engineers. The province of this department is to supply analysis of raw material, as well as of finished product, and to make physical tests and examinations.

The "Experience" or rubber department is controlled by W. G. Brown, who has had an uninterrupted experience of thirty-five years, covering all branches of the industry, including compounding and manufacturing, and whose specialty is to reconcile the theoretical tendencies of engineering and chemistry with the limitations and needs of rubber manufacturing.

THE FIRESTONE TIRE IN MOTORCYCLE RACING.

Racing in the form of hill-climbing contests is now interesting motorcycle riders, and an event of this class at Philadelphia on Decoration Day, a 500-yard stretch of dirt road with a 20 per cent. grade was covered by the winning

machine—equipped with Firestone tires—in 14 seconds, or at a rate slightly better than a mile a minute. The accompanying cut illustrates the event, which was witnessed by upwards of 3,000 spectators.

Firestone tires were also used by the winner of the 150-mile motorcycle race in California, May 30 and 31, as well as by the successful candidate in a similar race of 200 miles on the latter date at Phoenix, Arizona. Neither rider experienced any tire trouble in these contests, although the rear tire on each motorcycle had been in previous use in the 300-mile race at Venice, California, on April 4.

TRADE NEWS NOTES.

The Portage Rubber Co., whose "Daisy" tread tire has become familiar to so many automobilists, is reported to have purchased property at Barberton, Ohio, where its present plant is located, on which it will erect a fine new factory. This company is running day and night, the capacity of the plant now occupied being insufficient to take care of immediate demands.

An association has been formed by employees of the Federal Rubber Manufacturing Co., of Milwaukee, Wisconsin, under the direction of the welfare department of the company, to be known as the Federal Rubber Employees' Association. Nominal monthly dues are charged, and each member is eligible to sick or death benefits. The work of the welfare department of this company is said to have effected a 75 per cent. reduction in accidents among operatives.

The Pennsylvania Rubber Co., of Jeannette, Pennsylvania, has moved its Philadelphia office, of which George Blair is manager, from 651 to 306 North Broad street.

J. Goose & Co. have taken over the scrap rubber business formerly conducted by Goose-Broidy Co., at 100 Pearl street, Chelsea, Massachusetts, the partnership arrangement between J. Broidy and J. Goose having been dissolved.

At a special stockholders meeting of the Goodyear Tire & Rubber Co., held at Akron, Ohio, June 1, the proposed capital stock increase, as mentioned on page 513 of our June issue, was duly authorized, and a resolution was adopted by which $1,700,000 of the new stock was set aside for sale to employees; $250,000 being intended for immediate distribution.

At a regular meeting of the board of trustees of the New York Rubber Co., held at the company's offices at 84 Reade street, New York City, June 9, Christopher W. Wilson was elected to fill the vacancy on the board caused by the death of John P. Rider.

The Vulcan Recovery Co. has been organized at Trenton, New Jersey, with $150,000 capital stock, to conduct a crude rubber refining and reclaiming business. The incorporators are Herbert W. Backes, J. C. Frank and Jerome Klinkowstein.

In the settlement of the affairs of the Walpole Tire & Rubber Co., of Walpole, Massachusetts, 115 stockholders of Providence and vicinity, representing from 1 to 871 shares of common stock and from 1 to 167 shares of preferred stock—which before the failure of the Atlantic National Bank involved the company in financial difficulties had been paying 4 and 7 per cent. dividends, respectively—will lose the entire amount of their investments.

Charles H. Franks and Frederick V. Roesel, of the Ot-to No Air Tire Co., of Akron, Ohio, and inventors and patentees of a new type of core for a resilient wheel, to promote which the company was organized, are reported to have applied for an injunction against George M. Ott, to restrain him from disposing of his stock in the company. The complaint charges that the financial assistance promised by Ott in return for a half interest in the company has not been forthcoming, and the return of the stock is demanded.

WATERMAN CO. ACTIVITIES.

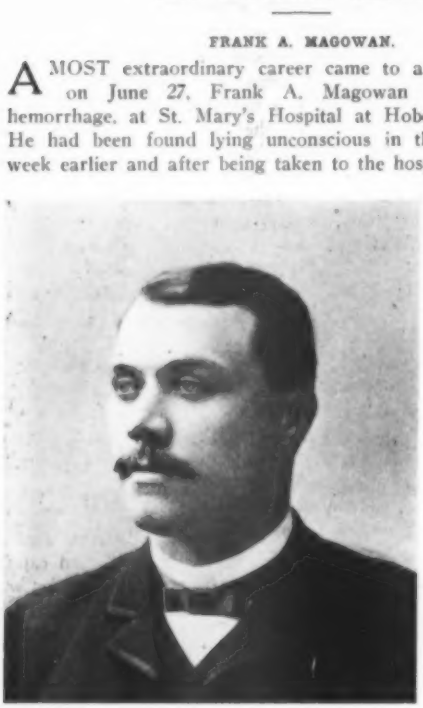
The L. E. Waterman Co., which manufactures the Waterman fountain pen, opened its fourth factory, at 163 Front street, New York, late in May, the occasion being marked by a luncheon served to 300 guests, of whom more than 200 were members of the New York Rotary Club.

Employees of the Waterman company, to the number of 600, attended an outing on June 12 at Rockland Lake, New York. Athletic games and dancing, with luncheon and supper, were included in the entertainment. The trip was made on a special train, and a band headed the first division of 100 employees, known as the "Ten Year Club," who have been in the firm's employ for at least ten years. Another delegation was from the "Health and Happiness Club," composed of young women employees.

THE OBITUARY RECORD.

FRANK A. MAGOWAN.

ALMOST extraordinary career came to a tragic end when, on June 27, Frank A. Magowan died, of cerebral hemorrhage, at St. Mary's Hospital at Hoboken, New Jersey. He had been found lying unconscious in the street nearly a week earlier and after being taken to the hospital only regained consciousness long enough to tell who he was. His son, Donald, of Trenton, was notified and immediately went to Hoboken and saw that everything possible was done for his father's comfort. The funeral, which was private, was held from Donald Magowan's home in Trenton. Four children, Donald, Spencer and Frank, of Trenton, and Mrs. W. W. Burden, who lives in Astoria, Long Island, survive him.



F. A. MAGOWAN.

Mr. Magowan's career in the industrial world, though comparatively brief, was exceedingly brilliant. From about 1886 to 1894 he was the head and front of the commercial and political life of Trenton. He was elected Mayor of the city and was prominently mentioned for the governorship of the state. He was a man of wonderful physical force and untiring energy, and everything he undertook seemed immediately to succeed. He was born in Trenton about 55 years ago and after graduating from the public schools became a salesman for his father, Allan Magowan, who had been identified with the rubber industry for some years.

It may not be out of place to devote a few lines to the elder Magowan. He was a man of sterling worth in every way, and his association with the rubber industry extended over a period of 60 years. He became connected in 1850 with the New England Car Spring Co., located in New York. At the outbreak of the Civil War he was associated with the New Jersey Car Spring & Rubber Co. in Richmond, and, being known to be a rubber expert, he was impressed by the Confederate government into its service and among other duties was directed to make torpedo fuses. But being a very strong Union man and having taken no oath to the Confederacy, he saw to it that his fuses would never harm the Union forces, for he carefully punctured them all before they were covered with insulation. After a year or so he secured a permit to come North as an exchange prisoner. He accumulated quite a fortune, which, however, in the later '90s was swept away in the financial troubles in which his son became involved. But later he established another rubber factory in New Jersey and continued his connection with it until his death in 1911.

Frank Magowan first became identified with the rubber industry in an important way in 1880, when, with his father and two others, he incorporated the Trenton Rubber Co. One rubber company, however, was not enough for his growing ambition, and very soon he incorporated two additional rubber manufacturing companies, one the Empire Rubber Co., the other the Eastern Rubber Manufacturing Co. But no one industry could monopolize his exhaustless energy. Early in the '90s he had become president of the Central Jersey Traction Co., which was formed to project a through line of electric railway from New York to Philadelphia, president of the Trenton Watch Co., general manager of the Trenton Potteries Co., president of the Trenton Oil Cloth Co., beside controlling several other large and successful industrial concerns.

But in 1894 his fortunes took a sudden turn. At that time the foreman of one of his rubber mills brought an alienation suit against him, and in the following year Mr. Magowan and the woman involved disappeared from Trenton and were located some time later in Oklahoma. From that time on his fortunes were as rapid in their decline as a few years earlier they had been in their upward course. In the next three or four years all the large interests he had secured became dissipated. In 1898 he sought to retrieve his place in the business world by forming a $10,000,000 syndicate of rubber plants, but in this he was unsuccessful. A few years later, in 1905, he took out a patent on a flexible inner tube which was to revolutionize the tire industry, and in the same year he incorporated the Pneumatic Ball Tire Co., with an authorized capital of $3,000,000. But this did not materialize into an active company.

In fact, from the time of his abrupt leaving of Trenton in 1895 he never was able to rehabilitate himself in the industry in which for some years he was such a dominant figure.

Mr. Magowan was a man of unusual type and varied characteristics. His ability as a worker and organizer was great, but his appetites were greater—so much so that once in control they wrecked him financially and physically. A millionaire at twenty, a waif at fifty, is a sad record. His friends—and he had many, too—often voiced the belief that with all of his brilliancy, he was not quite responsible, and that is perhaps the most charitable and reasonable way to view his varied and stormy career.

ADOLF GREGOR SPEYER.

Adolf Gregor Speyer, founder and partner of Speyer & Grund, Frankfort-on-the-Main, died on May 14 last. Mr. Speyer was 80 years old, and had been actively connected with the rubber industry for the past 20 years.

JAMES W. KELLEY.

After an illness of several months, James W. Kelley died at his home in Framingham Center, Massachusetts, June 9, at the age of fifty-five.

Mr. Kelley went to Akron as a young man of twenty-two and became a clerk in the office of The B. F. Goodrich Co. He gradually worked his way up to an official position in the company. Even as a young clerk, he had the greatest confidence in the future of the Goodrich company and invested all his spare savings in its stock. He even borrowed money for this same purpose, and as a result in time became one of its large stockholders, and with the great increase in the value of his holdings, he became a man of considerable wealth.

After remaining with the Goodrich company for twenty-five years, he retired from active work eight years ago, devoting two years to foreign travel with his family. He then returned and made his home in Framingham Center, Massachusetts. During his career in Akron, he found time for church work and charitable enterprises, and also served on the Akron Board of Education. After his return from his travels six years ago, he devoted himself very largely to philanthropic work.

His wife was Miss Nettie Ferriot, of Akron, who, with a daughter, Louise, survives him.

GEORGE H. KENDRICK.

George H. Kendrick, president of the Massachusetts Packing & Belting Co., of Boston, lost his life in the accident in Long Island Sound on June 13, when the Metropolitan Line steamer "Bunker Hill," on which he was returning from a building trades convention at Atlantic City to his home in Quincy, was rammed by the yacht "Vanadis," owned by C. K. G. Billings.

The collision occurred during a dense fog, the bowsprit of the "Vanadis" crashing into his stateroom and killing him almost instantly.

Mr. Kendrick was born in Quincy, Massachusetts, 45 years ago and was well known in the eastern mechanical goods and mill supply trades. He was at one time associated with the H. W. Johns-Manville Co., later becoming manager of the Boston office of the Crandall Packing Co., of Palmyra, New York. This position he held for five or six years, retiring a few months ago to form the Boston Packing & Belting Co., with offices at 141 Milk street. He is survived by his wife and one child, a daughter ten years of age.

ELIJAH KENT HUBBARD.

Elijah Kent Hubbard, formerly president of the Russell Manufacturing Co., manufacturers of fire hose of Middletown, Connecticut, died of heart disease in that city, June 27, in his eightieth year. He is survived by three sons and two daughters.

TRIBUTE TO THE LATE JOHN D. VERMEULE.

At a meeting of the board of directors of the United States Rubber Co., held June 17, President Samuel P. Colt called attention to the death on May 18 of John D. Vermeule, director of the company. On motion of Vice-president James B. Ford, seconded by Henry L. Hotchkiss, the following minute was unanimously adopted:

John D. Vermeule, whose death occurred on May 18, 1915, had been a director of this company since May 18, 1897, and for three years, commencing May 20, 1898, he was a member of the Executive Committee.

Mr. Vermeule became connected with the Goodyear's India Rubber Glove Manufacturing Co. in 1870, and in 1882 was elected president of that company. It thus appears that his relation to the rubber footwear business and to one of the most successful of the subsidiary companies of this company had extended for a period of forty-five years.

He was a man of sterling character, fair minded, kind and unselfish, and he endeared himself to his fellow directors and to his employees. His associates on this Board will ever remember him with high respect and warm regard.

PERSONAL MENTION.

Ernest E. Buckleton, president of the Northwestern Rubber Co., of Liverpool, in a personal letter to a friend in the United States, says, "I am still looking after Belgian refugees and intend to as long as I can, although funds are very low. The Rubber Club's donation was a Godsend and the Belgians often speak of the goodness of the Club."

K. E. Kersten has been appointed Chicago branch manager for the Boston Belting Co., located at 172 West Randolph street, where an assortment of all the well known brands of belting, hose and packing made by the company is carried.

Pedro Demoraes-Sarmento and wife, of Pará, Brazil, arrived in New York last month on the steamship "Sao Paulo." Mr. Demoraes-Sarmento is an active member of the firm of Palma & Sarmento, *aviadores*, of Pará.

E. H. Clapp, of the E. H. Clapp Rubber Co., Boston, has been elected a member of the Legislative Committee of the Rubber Club.

Samuel A. Foot, who has been connected with the druggist sundry business, as salesman, buyer and manager, for the last 24 years, has become associated with McKesson & Robbins, New York.

John J. Boyle, who for the last 5 years has been connected with the Gutta Percha & Rubber Manufacturing Co., of New York, has joined the sales force of the New Jersey Car Spring & Rubber Co.

The June number of this publication contained an obituary notice of the late Arthur R. Foley one of the victims of the sinking of the "Lusitania," who had been connected as a salesman with the Home Rubber Co., of Trenton, New Jersey, for a long time. The trade in the particular territory covered by Mr. Foley will be interested to know that his son, J. B. Foley, also one of the Home company salesmen, will visit the customers to whom his father was so long a familiar figure.

TRADE NEWS NOTES.

Honorable Victoriano Huerta, ex-provisional president of Mexico, who has established his summer home at Forest Hills, on Long Island, New York, has selected Ajax tires, the product of the Ajax Rubber Co., of Trenton, New Jersey, for the equipment of his automobiles.

The Scrap Rubber Division of the National Association of Waste Material Dealers held its quarterly meeting June 14 at the Hotel Astor, New York. Paul Loewenthal, of The Loewenthal Co., 37 West Thirty-ninth street, New York, is chairman of this division.

The Steel Pneumatic Tube & Tire Co. has removed its sales rooms, formerly located at 1853 Broadway, to its factory at 146 West Fifty-second street, New York.

At the annual meeting of the stockholders of the Quality Tire & Rubber Co., of Hartville, Ohio, held May 29, it was decided to increase the capital stock from $75,000 to $500,000. The subject of plant enlargement was also considered, but it was decided to defer the commencement of this work until next spring. The present plant, which has been in operation since last Fall, has a capacity of 200 tires a day.

At this meeting John C. Harmony was elected president and C. E. Bair secretary and treasurer. The board of directors includes Oliver Brumbaugh, Hiram Carper, John C. Harmony, M. E. Herr, G. F. Munk, Frank Schumacher (former president), and William Wagner.

At a meeting on June 15, of the directors of the Standard Tire & Rubber Co., of Willoughby, Ohio, it was decided to increase the capitalization of that company from $100,000 to $500,000. The work of installing machinery at the factory recently acquired by this concern, and which was formerly ocupied by the American Fork & Hoe Co., has commenced, five carloads of new equipment arriving in Willoughby on June 15.

The plant of the Century Rubber Co. at Plainfield, New Jersey, has been sold at public auction to Leon Jaffess, of New York and Harrison, New Jersey, for $29,000.

The Portage Rubber Co., of Akron, Ohio, has added a new tire tread to its line, under the registered name "Safegrip."

The Federal Rubber Manufacturing Co., of Milwaukee, Wisconsin, has moved its Detroit branch—of which A. L. DeVault is manager—from 846 Woodward avenue to 247 Jefferson avenue, east.

The D. L. Davis Manufacturing Co., which manufactures tire pumps and other accessories, with plants at Chicago and Milwaukee, is reported to have received a site at Fort Madison, Iowa, for another factory. C. W. Tarbet, president of this company, is also president of the Perfection Tire & Rubber Co.

The Kansas City Tire & Rubber Corporation has been formed at 22 William street, New York, with $335,000 capital stock, by Leopold M. Lehr, Ralph Atkins and Joseph A. Arnold, to manufacture tires and other rubber goods.

The Miller Rubber Co., of Akron, Ohio, has established an agency for its tires at Des Moines, Iowa, with the Schooler Rubber Co., at 1020 Locust street.

The Kansas City Tire & Rubber Co., with offices at 1111 Commerce building, Kansas City, Missouri, is among the new western rubber companies. The manager is W. W. Wuchter, formerly of the Swinehart Tire & Ruber Co., Akron, and more recently factory manager at the Gibney Tire & Rubber Co., Conshohocken, Pennsylvania.

The Schelp-Budke Tire & Rubber Co., St. Louis, Missouri, has recently taken the agency in the territory adjacent to that city for the tires made by the Gibney Tire & Rubber Co., of Conshohocken, Pennsylvania.

MR. MARKEY CELEBRATES HIS 82ND BIRTHDAY.

Isaac Belknap Markey, vice-president of the Eureka Fire Hose Manufacturing Co., of New York, who recently celebrated his eighty-second birthday, has been connected with the fire hose industry for 43 years, for 25 years of which time he was a traveling salesman. He has occupied his present position in the Eureka company for a number of years. Mr. Markey is one of the best known supply men in the country, and the appreciation in which he is held among fire department heads was fittingly evidenced in the presentation to him at an International Fire Association meeting a few years ago of a diamond-studded badge.

COLONEL COLT'S ANNUAL CAMPING PARTY.

Following his custom for a number of years past, Col. Colt spent ten days of June at Camp Colt, his hunting lodge, at Norcross, at the foot of Mt. Katahdin, Maine. He left Bristol with his party in a private car on the first of June. His guests this year included Walter S. Ballou, president of the Woonsocket Rubber Co., and Nathaniel Myers, counsel for the United States Rubber Co. The other members of the party were his brother, Senator LeBaron B. Colt; Reverend Dr. George L. Locke, Mr. and Mrs. Wallis E. Howe and Mr. and Mrs. Andrew Weeks Anthony, of Bristol; Mr. and Mrs. E. A. Barrows, Colonel and Mrs. H. J. Gross and Mrs. William Beresford, of Providence; Countess Elinor Moroni, of Montreal, and Dr. Calvin S. May, of New York.

MR. IVINS' HEALTH DELAYS ACTION IN RUBBER SUIT.

It was expected that the action brought by William A. Evans, as trustee, against the Rubber Goods Manufacturing Co. to settle certain differences over stock subscriptions would come before the Supreme Court of New York in June, but it had to be postponed owing to the health of Mr. William M. Ivins, the chief witness for the defense. Mr. Ivins' physician sent an affidavit to the court saying that, owing to the extremely laborious work that devolved upon him in the libel suit which he conducted for William Barnes against Col. Roosevelt, he had suffered a collapse. Mr. Ivins in his affidavit said: "I began the preparation of the case of Barnes against Roosevelt about the first of this year, and concluded the trial at Syracuse May 19, the whole matter having been a long and exceptionally heavy strain upon me."

COMMODORE BENEDICT ENTERTAINS MUSICIANS.

Commodore Benedict gave a luncheon on June 9 at his residence at Indian Harbor, near Greenwich, Connecticut, to the Mendelssohn Glee Club, of New York City. Eighty-four members of the club—who were carried from New York to the Commodore's home and back on his famous yacht, the "Oneida"—together with 50 other guests, were present.

WAS MULLER, THE SPY, A RUBBER MAN?

Several weeks ago F. Robert Muller was arrested in London, together with two other men, Hahn and Kuepferle, all being accused of acting as spies for Germany. They were convicted of sending military information by means of invisible ink. Hahn was sentenced to seven years' penal servitude; Kuepferle committed suicide during the progress of the trial, and Muller was sentenced to death. He was executed June 23 in the Tower of London.

It has been generally believed that this was the same F. Robert Muller who was a rubber dealer in Boston a few years ago, first being connected, very briefly, with one of the larger importing houses and then operating as a dealer on his own account. Friends of the former rubber dealer maintain, however, that he is not the man recently executed and show, in substantiation of their contention, a letter received by a Boston lawyer about a month ago from the Muller formerly of Boston saying that he was a private in the British army.

MR. LOEWENTHAL ENGAGES IN CHARITABLE WORK.

A DEPARTURE from the usual methods in the collection of funds for charitable purposes is noted in the work of The United Hebrew Charities of the City of New York. This organization maintains an industrial department at 37-39 Greene street which has recently started a movement to increase the funds for relief of the needy by the collection of waste materials. The chairman of the committee in charge of this work is Max Loewenthal, vice-president of the U. S. Rubber Reclaiming Co., Inc., of 30 East Forty-second street, New York. Under his direction this work of collecting waste materials and selling them to the mills will no doubt result in material assistance to the poor.

MAX LOEWENTHAL.

The plan adopted in this work is simple. Cotton bags are sent to householders, accompanied by letters requesting that all kinds of old materials, such as old rubber goods—water bags, rubber hose, rubber shoes, wringer rolls, etc.—be saved. An addressed card is enclosed in each letter, so that when the bag is full the Department may be notified to call for it.

Apart from the charitable purpose for which this enterprise has been started, employment is thus given to numerous collectors and others, and economic waste is avoided. Up to the middle of June several thousand of the 25,000 bags distributed had been returned.

Mr. Loewenthal has been an important figure in rubber reclaiming for many years. Together with the late Theodore S. Bassett, he founded the United States Rubber Reclaiming Works, at Shelton, Connecticut, in 1895. When, in 1900, this company was merged with the Loewenthal Rubber Co., of Jersey City, and the combined corporation, under its present name, the U. S. Rubber Reclaiming Co., Inc., was moved to the large plant in Buffalo, New York, which it has since occupied, he became the treasurer, later being elected president. But two years ago, while retaining a directorship and the vice-presidency of the company, he retired from active participation in its affairs, in order that he might devote the greater part of his attention to charitable work.

The J. Spencer Turner Co., of 86 Worth street, New York, agent of the International Cotton Duck Mills and also of the Mt. Vernon-Woodbury Cotton Duck Mills, has been advised by the latter concern that after July 1 it will sell all its product direct to the trade. The product of these mills consists largely of wide duck, numbered duck and sail and army duck. The J. Spencer Turner Co. will, however, continue the sale of hose and belting duck, together with the various kinds of duck and fabric used by the rubber trade and made at the International mills.

Robert B. Baird, of the Rubber Trading Co., of New York, who with Mrs. Baird has been taking a vacation tour of the West, viewing the sights of the Panama-Pacific Exposition, among other things, is expected to return to New York on the 10th of the month.

HOOD RUBBER CO. CUTING.

THERE were thousands of sad faces in and about Watertown early Thursday morning, June 17, which is the date of the anniversary of the Battle of Bunker Hill, and a legal holiday. The Hood Rubber Co. had made extensive preparations to celebrate that day by giving an outing to its employees. Riverside Recreation Grounds had been pre-empted, special trains arranged for, bands hired, a program of sports and contests prepared, hundreds of prizes bought, and so many tickets distributed that the committee lost count. And then it rained!

How it rained! It looked that morning as though the six inches of rain, which Boston is shy, would be made up in that one half day. But the shower was not of long duration, and the clearing skies brought out a large attendance. Four thousand persons, each wearing a big blue tag, passed the turnstile. There were old men and children, young men and maidens, for the invitations included the whole family of each employee.

FOOTBALL TEAM.

They came prepared to have a good time. There were sports and games galore—contests, with prizes ranging from a gold watch to articles for comfort and adornment. To tell all that was going on would have necessitated your reporter's presence in three or four places at once, for the football field, the baseball diamond, the tennis courts, the outdoor gymnasium, the swimming bay, the race track, the river race course, the bowling alleys and the dance hall were all in constant use.

And from one o'clock till dark things were humming. Out in the baseball field two nines, the "Red Sox" and the "Braves"—the former with proper colored hosiery to deserve the name; the latter with war paint, feather head-dresses and tomahawks—played ball. The score, according to the grandstand fans, was 10 to 2 in favor of the "Red Sox."

GIRLS' FOOT-RACE.

MEN'S FOOT-RACE.

TUG-OF-WAR.

Then there was a Gaelic football game between the calender day team and the calender night team, which was won by the latter. The single men and the married men had a try at baseball, but the scores got away while your correspondent was watching a lively tug-of-war, participated in by Millwrights, Carpenters, Makers and State, which resulted in a victory for the States, the five happy men winning gold fobs bearing the Massachusetts State seal, surrounded by the name of the company.

Everywhere, all over the big lot (he seemed to be ubiquitous), was Tom Keating, the clown, with whitened face and yellow costume. He was funny, but besides he was a fine athlete, and his comedy stunts were as marvelous as they were laughable.

There were gymnastic contests, too, and Punch and Judy for the children—a real English Punch and Judy, with the genuine Cockney accent.

Speaking of accents, there were several, as notice the names of contestants—English, Irish, Scotch, French, German, Italian,

STRONG MAN.

Russian, Polish, Armenian, Syrian and Persian. Americans, hyphenated Americans and foreigners were all one big family, out for a good time; and they had it.

Every contestant for any event had a card pinned to his or her back, with a number in figures six inches high, and everybody entering the grounds had a list telling to whom each number was pinned. It served as an introduction.

The list of contests is too long to be given in full, but among the successful contestants special mention should be made of Mary Viveiros, who works in the quarter room, who carried home eight or ten prizes, also of Paul J. Kanaly, in the construction department, and Elsie J. Kanaly, his sister, in the production department, who won a variety of useful and ornamental prizes. The following is a list of winners in the chief events:

One hundred-yard dash, W. Cleophus; one mile run, H. J. Davkin; running broad jump, A. J. Landing; running high jump, A. Howes; tennis, men's singles, L. Beane; quarter-mile canoe race singles, J. Higgins; half-mile canoe race, doubles, Hawkins and Hawthorne.

And after the sports there was dancing, to the music of the Waltham Watch Co. band; canoeing on the Charles river under electric illumination, and later the trip home on special trains, special automobile trucks, and special trolley cars.

Several of the officers and executives, also members of the selling force, participated in the celebration. Great credit should be given the executive committee—Dr. R. S. Quimby, chairman; C. W. Johnson and H. L. Baxter—and the members of the various other committees are each and every one entitled to praise for the perfection of the arrangements and the smoothness of the day, which passed without accident or untoward incident. The Hood Rubber Co. will profit, in the increased loyalty and appreciation of its thousands of employees by this generous celebration.

CANOEING ON THE CHARLES.

TOM KEATING, THE FUNNY MAN.

RUBBER BONDS OVER-SUBSCRIBED.

The $9,000,000 five per cent. debenture gold bonds of the General Rubber Co. offered investors through the First National Bank and Central Trust Co. of New York on June 10 were oversubscribed within a few hours of the opening of the books.

THE HEWITT RUBBER CO

The Hewitt Rubber Co., Buffalo, New York, is one of the best equipped and most successfully operated rubber manufacturing concerns in the trade. The buildings are modern, and the equipment includes an elaborate system of testing laboratories and an electrically operated power plant, which includes fuel and ash-handling devices. The Hewitt product comprises various types of railway, fire and navy hose, pure sheet for port-hole rubbers, rubber belting and a general line of mechanical goods. This company has for a number of years had large contracts with the government for rubber naval supplies, from which a high standard of work may safely be assumed. It recently received a large hose contract from the city of Pittsburgh, Pennsylvania. The officers of the company are: H. H. Hewitt, president, and W. C. Mullett, secretary. Frank H. Van Derbeck is the manager of the plant, and E. H. Openshaw superintendent.

BUYING AMERICAN AUTOS AND TIRES FOR SERBIA.

Col. Yeverem Popovitch, of the Serbian artillery, and two other representatives of the Serbian government, arrived in New York on June 19 on the Greek steamship "Themistocles," with the expectation of making a tour among the large manufacturing plants of this country which make military supplies. Col. Popovitch states that the Serbian government has ordered $120,000 worth of American automobiles, and expects to order a quantity of American automobile casings, as they have found that the motor cars and tires made in this country give better service than those made in Europe.

PLYMOUTH RUBBER CO. BANQUET.

The banquet given at the City Club, Boston, on the evening of June 9, by the Plymouth Rubber Co. to heads of departments and members of its sales force, clearly demonstrated the growth of this company since its establishment less than 20 years ago. At that time the total number of persons employed was 5, whereas more than 60 attended the banquet as department heads and sales representatives, while 500 are employed in the factory at Canton, Massachusetts. The product of the Plymouth Rubber Co. consists of rubberized materials and sheetings, in addition to the "Durable-Kompo" sole and the "Slipknot" heel.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

THERE is little that is new to be said of the business situation, as far as the rubber business is concerned. However, there is a feeling all through the trade that things are just a little better than they were a month ago. The New England States have not had their quota of rain this spring—they are six inches behind the record, and this is making an impression on the garden hose business, which is better, and the rubber garment trade, which is worse. The mill trade continues unsatisfactory in some respects; purchasing agents of the big manufacturing companies still pursue their policy of buying only as needed, rather than carrying supplies on hand. The boot and shoe men report that many of their northern New England customers have ordered in much smaller quantities than last year. There are somewhat divergent reports regarding the demands for rubber heels and soles, some producers telling of increasing business, while others are less enthusiastic. The same may be said of the automobile tire business.

But the general feeling is one of gradually returning confidence and a belief that from now on there will be a heavy and a steady increase in business.

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There are some good golf links around New York, but when real golf enthusiasts want the best, they come to Boston. Early last month George B. Hodgman, president of the Hodgman Rubber Co., and Henry C. Pearson, editor of THE INDIA RUBBER WORLD, having a desire for more links to conquer, came over to Boston, and with Messrs. J. H. Learned of the Revere Rubber Co., and Frederick H. Jones of the Tyer Rubber Co., chased the little white balls around the Brae Burn Club course in Newton. The score will not be published here, for fear of increased handicaps at the outing of the Rubber Club, to be held this month at Lowell. However, the New Yorkers were satisfied that this golf course was one well worth playing.

* * *

The members of The Rubber Club of America, Inc., anticipate a royal good time at the outing to be held July 14. The committee in charge gives out most enthusiastic prophecies of a program which will outdo any previous affair of the kind in the annals of the club. The location chosen is ideal, and the details of the day's program are sufficient to insure a good attendance and an enjoyable outing.

* * *

On Friday, June 4, a serious fire occurred at the King Rubber Co.'s plant at Hyde Park, caused by the ignition of bisulphide of carbon in the curing room, which set fire to the woodwork. The flames reached a number of tanks of gasolene, some of which exploded, thus spreading the fire to the entire structure. Owing to the quick action of Superintendent McDonald the 18 employes—eight of them women or girls—escaped without injury. The building was a one-story wooden structure, owned by the Metropolitan Raincoat Co. but for the past year occupied by the King Rubber Co. Manager M. D. Kingsbury stated that the loss was between $5,000 and $10,000. The company manufactures rubber gloves and nipples. Of course the practically total destruction of the factory will interfere to some extent with the filling of orders, but it is expected that within thirty days the company will have resumed manufacture.

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The accident in Long Island Sound on June 13, when C. K. G. Billings' yacht "Vanadis" collided with the steamer "Bunker Hill," caused the death of George H. Kendrick, president of the recently formed Boston Packing & Belting Co., of this city. (Further mention appears on another page of this issue.) Another sad casualty of the collision, was the injury to Mrs. Waugh, wife of A. E. Waugh, manager of the Philadelphia store of the Revere Rubber Co., of Chelsea. Mrs. Waugh was coming to Boston because of the serious illness of her father, who has since died. As a result of her injuries it was found necessary to amputate one leg. She is understood to have rallied from the shock of this operation and to be now in a fair way to recover.

* * *

There were some distinguished Chinese visitors in Boston the middle of the month, the party being headed by Hon. Chang Chien, reputed to be the wealthiest man in China. While here the Chinese Honorary Commercial Commission visited various prominent industrial plants. One party, which included President Chang, made a visit of inspection to the American Rubber Co.'s factory at Cambridge. The interpreter was kept busy translating the questions of Mr. Chang and the answers of Superintendent Woodward, Sales Manager Greene and Treasurer Nance. It seems that, among his many enterprises, President Chang is interested in plantation rubber; so that this visit and the information supplied in reply to his questions were of special interest to him for future utilization.

The guests were shown all through the big plant of the company, pausing long enough to see a rubber shoe being made under the deft fingers of a champion maker. Superintendent Woodward promised to send that identical shoe to President Chang in China, after it had been vulcanized. The honorary commissioner took him at his word, and with his pencil indented in the soft rubber his autograph for identification, explaining through his interpreter that he should look forward with pleasure to the receipt of a shoe put together under his own eyes.

* * *

The Goodyear Rubber House, which for so many years was on School street, but of late years was near the Touraine Hotel, on Boylston street, has made another change, and is now at 20 Federal street. Manager Eldredge believes there is a better business to be done on this direct route between the South Terminal Station and the post office, hence the change.

* * *

At the regular monthly exhibition of the Massachusetts Horticultural Society in this city last month, the principal feature was a new geranium exhibited by Mrs. Lester Leland, wife of the vice-president of the United States Rubber Co. This new variety is a seedling of two of the most beautiful and costly species of geranium, and is a rich silver pink in color. The society voted to name it the "The Mrs. Lester Leland," and thus the name will be known wherever rare and beautiful flowers and plants are appreciated.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

THE rubber industry throughout this State is sailing along under full steam, with practically every plant rushed for the delivery of goods. Several of the factories have enough orders from Europe to keep them going on full time for a considerable period, and in many of the departments overtime is the rule. There is still a very general demand for competent employees, much difficulty being experienced in securing good help.

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The dividend on the common stock of the Washburn Wire Co., of Providence, recently paid at the rate of 7 per cent. per annum, has been increased to 8 per cent., payment at the new rate beginning July 1, to stockholders of record on June 19. The regular quarterly dividend has been declared on the preferred stock at the rate of 7 per cent. per annum, payable July 1. The initial dividend on the common stock was declared April 1, 1913, at the rate of 5 per cent., and this was increased to 7 per cent. April 1, 1914. The local plant of the corporation is at Phillipsdale.

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In the list of manufacturing, mercantile and miscellaneous

corporations doing business in Rhode Island having a corporate excess tax of $50,000 or more, according to the annual assessment certified by the State Tax Commission to the General Treasurer, are the following: American Electrical Works, $70,006.31; American Emery Wheel Works, $63,231.64; American Multiple Fabric Co., $71,368.14; American Wringer Co., $1,134,505.24; Atlantic Tubing Co., $83,471; Joseph Banigan Rubber Co., $1,338,900; Bourn Rubber Co., $111,606.36; Collyer Insulated Wire Co., $62,580; Davol Rubber Co., $157,200.92; Glendale Electric Fabrics Co., $104,775.69; Mechanical Fabric Co., $644,981.92; National India Rubber Co., $1,394,996.89; New England Butt Co., $121,080; Phillips Insulated Wire Co., $1,320,997.66; Revere Rubber Co., $483,455.12; Tubular Woven Fabric Co., $53,750.85; Universal Winding Co., $68,710.72; Washburn Wire Co., $737,881.39; Woonsocket Rubber Co., $807,468.38.

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The official announcement, made a few days ago, by Col. Samuel P. Colt, of Bristol, president of the United States Rubber Co., to the effect that the Executive Committee had voted to approve of its employees joining local militia and naval reserve companies, directly affects scores of men who are members of the Rhode Island militia or naval reserve companies.

In conjunction with this notice the National India Rubber Co., at Bristol, through its vice-president, LeBaron C. Colt, issued the following notice: "The United States Rubber Co. feels that it has an obligation to do its share toward assisting in the adequate defense of this country, especially in view of the uncertain times now upon us. The company desires to encourage all of its employees who will to join the militia and serve in that organization enthusiastically.

"As a general policy, the company will pay members of the militia their full pay during their usual annual absence at camp, and will endeavor to arrange their work and duties so that all reasonable calls upon their time by militia obligations can be readily met. It is undoubtedly true that employers in the past have discriminated against members of the militia, and also against soldiers from the regular army. It is desired to change this attitude in so far as this company may have been a party to it. The United States Rubber Co. has contributed to the fund started by the Aero Club of America for the purchase of aeroplanes for the national guard service, and the company is actively entering the field for manufacturing various aeronautical supplies, with the idea of doing its part to assist the United States Government in having unquestioned sources of supply within the boundaries of the United States."

The above announcement is in keeping with the highly patriotic stand taken by the directors of this corporation during the Spanish-American war. At that time its employees were urged to go to the front, and a large number who served in that conflict from Woonsocket received the benefit of double pay, getting their money from the government, while their families received their regular weekly wages from the rubber company.

* * *

Robert J. Bowes, for the past fifteen years manager of the Lawrence Felting Co., of Millville, has resigned, to take effect July 1. He had been connected with this concern for the past 27 years, having started with his father, the late W. J. Bowes, founder of the company, which is now owned and controlled by the United States Rubber Co. Upon the death of his father, Mr. Bowes assumed charge as manager, and has since conducted the plant. His retirement is on account of poor health.

Mr. Bowes will be succeeded as manager by George Schlosser, of Woonsocket, general superintendent of the Woonsocket Rubber Co., which means that the latter will have four plants in charge. In addition to being in charge of the Woonsocket Rubber Co.'s big shoe mill at Woonsocket and its large factory at Millville, he has had charge, during the last few years, of the L. Candee & Co. rubber mill at New Haven, Connecticut; and now the addition of the Lawrence Felting Co.'s plant places a quartet of factories under his capable supervision.

Miss Elsie F. MacDonnell, a graduate of the Rhode Island Hospital Training School for Nurses, entered the employ of the Woonsocket Rubber Co. about the middle of June as factory nurse. Her work will be largely first aid and along preventive lines among the employees of the Alice rubber mill, Woonsocket, the Millville rubber mill, Millville, and the Lawrence felting mills, all owned by the United States Rubber Co. Her headquarters will be connected with the "rest" room, which has recently been enlarged, at the Alice mill. This mill employs 1,500, the majority of whom are young women; the Millville plant employs 700 operatives and the Lawrence Felting Co. nearly 100. The introduction of a factory nurse at the United States Rubber Co.'s mills at Woonsocket and vicinity is merely an extension of the policy that has been in force for some time in other large factories of this corporation.

* * *

Creditors and affiliated interests in this city and vicinity of the Walpole Tire & Rubber Co. are considerably interested in the recent approval by Judge Dodge, sitting in the United States District Court at Boston, of an additional dividend of 25 per cent. declared by the receivers of the concern, to be paid to the creditors. This makes a total of 50 per cent. declared to date. It is said that further dividends, sufficient to bring the total up to 85 per cent. have been promised by the receivers, as the New York creditors who purchased the property have already been allowed 85 per cent. on their claims in the adjustment negotiations for the sale of the property.

According to the receivers' statement there is cash on hand amounting to $279,243 now available, and they expect to get between $25,000 and $50,000 more. Because of the opposition of creditors, Judge Dodge declined to make an allowance on account to receivers at this meeting. The receivers have already received $32,000 and have asked for $6,000 each additional. Counsel have already received $23,500 and a request has been made for $10,000 more. Since the appointment of the receivers, August 2, 1913, up to May 22 of the present year, the total receipts have amounted to $3,503,887, while the expenditures total $3,247,286, leaving a cash balance of $256,601.

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Former Governor Augustus O. Bourn, president of the Bourn Rubber Co., was elected president for life of the class of Brown University, 1855, at the annual reunion held in connection with the recent commencement exercises of the college, this being the oldest class to attend the graduation this month. For sixty years Governor Bourn has led in making the arrangements for the reunions of his class, and election for life was unanimously agreed upon as a fitting honor.

* * *

The Revere Rubber Co. is reported to have recently secured large orders for rubber thread for shipment to Leicester, England. The thread department of the local plant on Valley street, Providence, is rushing on an overtime schedule to keep up with the increasing demands.

Business is rushing at the American Wringer Co.'s factory at Woonsocket. The plant has the full number of employees, is working full schedule of hours and has orders ahead which promise to continue this condition for a long time to come.

A large number of shipments of tennis shoes and insulated wire from the factory of the National India Rubber Co., at Bristol, recently, has necessitated the employment of extra freight handlers at the New Haven road's freight depot in that town.

THE RUBBER TRADE IN TRENTON.

By Our Regular Correspondent.

AN invention which promises to assume an important place in the manufacture of automobile inner tubes has been perfected by Eugene Van Note, of Trenton and New York. It is known as the Van Note tube splicing machine, and it does away entirely with the hand method of "turning" the ends of a tube preparatory to splicing. The present method, which is a comparatively tedious operation and distasteful to the operatives because of the liability of bruising and cutting the fingers, takes three times as long as the process perfected by Mr. Van Note. Several basic claims on the machine have already been allowed by the Patent Department. The John E. Thropp's Sons Co. will manufacture the machines on royalty.

The first machine completed has been installed at the plant of the Delion Tire & Rubber Co. The business of this company is rapidly expanding. Two more tire making machines and another vulcanizer have recently been added to its equipment.

* * *

The "jitney" trade has produced a marked increase in the demand for tires. Rubber men predict that if the jitneys increase in the same proportion for the next year or two it will tax some of the factories to take care of the business.

One well known tire manufacturer, referring to the subject this week, said: "The jitney cab drivers realize that if they are to keep their cars on the go they must be equipped with high-grade tires, and this is the type most of them are buying. A jitney laid up for tire repairs loses more money than it would have cost for good tires in the first place and the owners are not slow to see this. I venture to say that thousands of old cars which were practically in storage have been brought forth and converted into jitneys."

* * *

The John E. Thropp's Sons Co., which makes rubber machinery, has accomplished an unusual feat in the erection of its new plant. This plant is on the site of the old one and the company's work was not interrupted during any part of the operation. This was made possible by erecting the new building in the form of a shell over the old structure and then gradually demolishing the old plant. The company is rushed to top speed with orders. It expects shortly to have ready for shipment a large order of tire-making machinery for a French factory. It will be necessary to send demonstrators to France with the machines, as they will be the first of their kind to be used in that country. Heretofore the French have used machines of German manufacture. The introduction of the American machines will enable the factories to operate with one man less for each machine than is required by the German make, and to turn out three times as many tires in the same time.

* * *

The Vulcan Recovery Co. is the title of a newly incorporated concern which proposes to reclaim rubber in Trenton. The officers of the new concern, all of whom are connected with the Essex Rubber Co., are: A. T. Oakley, president; Owen Moon, vice-president; C. H. Oakley, treasurer, and A. E. Moon, secretary. Reclaiming operations are to begin about July 1. A. T. Oakley, the president, was for many years general superintendent of the Alkali Rubber Co. at Akron, now known as the Akron branch of the Philadelphia Rubber Co.

* * *

A law suit which promises to be of unusual interest to the trade because of the points at issue has been instituted in Mercer Court by Mrs. Thirza Ann Foley, widow of Arthur R. Foley, the rubber salesman who lost his life on the "Lusitania." The Home Rubber Co., which employed Mr. Foley at the time of his death, and in the interest of which he was en route to England, is made defendant in the suit. The Employers' Liability Law under which the action is taken is rather liberal in interpreting the rights of employees killed or injured in the course of their regular work. The maximum compensation allowed by law for the death of a man drawing the salary Mr. Foley is said to have drawn, is $10 per week for 300 weeks.

Courts have held that where an accident is the result of a risk reasonably arising out of the employment the employers may be held liable. It may be contended that the death of Mr. Foley was not the result of an accident within the meaning of the law.

* * *

Delegates attending the convention of the National Shoe Finders' Association, which is to be held at San Francisco, July 8-9, will be presented by the Essex Rubber Co. with handsome gold bronze watch fobs enameled in four colors and fashioned in octagon shape after the old California dollar. The famous "Blue List Cobbler" is shown in relief, busily applying Essex soles. On the obverse side is the company's trade mark.

Several new members have recently been added to the Essex road force.

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The Acme Rubber Manufacturing Co. and the Hamilton Rubber Co. closed their entire plants recently during the funeral services of William S. Hancock, who was part owner of the concerns. Mr. Hancock left an estate of more than half a million dollars. He was at one time State Comptroller and one of New Jersey's leading business men. The flag on Trenton's City Hall was at half mast in his honor. J. E. Meyer, of the Acme Rubber Co., was one of the pall bearers at the funeral.

* * *

General C. Edward Murray, of the Empire Rubber & Tire Co., has bought a luxurious yacht which he will use for ocean cruising. He has christened it "Virginia."

The Empire company is making alterations and extensions to its plant, improving and increasing its producing facilities. This company is extremely busy in its tire department, which is being operated day and night, on three shifts of eight hours each. One new building is in course of erection, and a siding is being built from the Pennsylvania railroad tracks direct to the shipping room.

* * *

The Trent Raincoat Co. is the title of a newly incorporated company which will manufacture raincoats and rubber specialties in this city. The plant is on New York avenue. The incorporators are William O. Anderson, A. J. Anderson and Francis J. Quigley.

* * *

Work on the new building of the Z. Z. Tire & Rubber Co. at Yardville is being pushed with great rapidity.

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It is reported that the partnership between H. Freedman and I. Fineberg, composing the Trenton Scrap Rubber Supply Co., is being dissolved, inventory being taken and stock on hand disposed of preparatory to winding up the affairs of the company, which, during the seven or eight years it has been established, has done an extensive business in the handling of this material. It is said to be the intention of both partners to continue trading independently.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until July 13, on 2,000 feet of unlined linen hose—schedule No. 8521—and until July 20 on 1,000 feet of similar material—schedule No. 8528.

THE RUBBER TRADE IN CHICAGO.

By Our Regular Correspondent.

GENERAL conditions in the rubber trade here are somewhat improved. The rubber clothing houses in particular report a fine business, due to the fact that so much rain has fallen of late. The wet weather caught the dealers with low stocks, and the result was a rush such as had not been experienced in some time.

* * *

The Firestone Tire & Rubber Co. is the complaining witness in a suit being tried in the federal court here against a band of thieves who broke open a car filled with Firestone tires in the local freight yards as it passed through the city on its way to the West. The tires were discovered by detectives in the home of one of the looters, after they had been offered for sale.

More than ten thousand advertising men recently assembled in this city to attend the convention of the Associated Advertising Clubs of the World. One of the features of the convention was a grand parade, which represented an expenditure of more than $100,000 for floats representing national advertisers. The Firestone company had a fine float, which received great applause as it passed the reviewing stand.

* * *

An important transaction of the month was the closing by the H. W. Johns-Manville Co. of a lease for the four-story building at the northeast corner of Michigan avenue and Eighteenth street. The lease was for a term of years at the reported aggregate rental of $310,000. The building is in the center of the automobile row, in one of the most rapidly growing sections of the city. The structure is 80 x 165 feet, and is one of the finest of the kind in that part of the city. The main office of the company is now located at 322 North Michigan avenue, and it also has a store and service station for automobile accessories at 1428 South Michigan avenue. These two buildings are soon to be given up, however.

* * *

Business of all kinds was severely hampered early last week by a strike on both the surface and elevated lines. The strike was called so suddenly that there was no chance for preparation. However, automobiles and "jitney" busses were soon placed in operation, the additional consumption of tires in the end benefiting the rubber trade. The strike lasted two days, during which time employees of large concerns were conveyed to and from work by motor trucks sent out for that purpose.

* * *

On July 6 the Interstate Commerce Commission will hold a meeting in this city at the Hotel La Salle, for the purpose of hearing the arguments of the western railroads on why a higher rate on passenger fares ought to be granted. The increase is opposed by the rubber men, who are working hard through their various organizations to defeat the plans of the railroads, as they believe the carriers are taking advantage of a wave of popular feeling in their favor.

A movement is under way for an eight-foot waterway between the South branch of the Chicago River and the Illinois River. The purpose is to establish an all-water route from the Great Lakes to the Gulf of Mexico. New York concerns have been making extensive use of the Panama Canal, and in this manner have been able to undersell Chicago firms on the Pacific coast, owing to the fact that the water rate from New York is much less than the rail rate from Chicago, in spite of the fact that this city is about a thousand miles nearer to the destination.

* * *

At the recent convention of the National Piano Manufacturers' Association here, a movement was set on foot to organize the piano supply trades, among which are included the houses which buy rubber tubing for use in making player actions. While no definite organization was formed, it was agreed that seven men should be selected to represent the supply trades at a meeting to be held in New York City next February, for the purpose of forming a federation of all the music trade and allied associations.

* * *

The rubber trade has sustained a loss in the death of M. F. Salisbury, vice-president and treasurer of W. H. Salisbury & Co., Inc., this city, which occurred in May. Mr. Salisbury was born at Pascoag, Rhode Island, in 1831. During the early part of his life he was engaged in various enterprises. He early showed ability as a financier, and was sent to Honduras when a young man by a group of capitalists for the purpose of superintending large mining properties. He returned from successful accomplishments in this field to engage, in 1866, in the woolen manufacturing industry in Massachusetts. In 1884 he joined his brother, William H. Salisbury, of the above-named firm, in the manufacture of leather and rubber belting and packing. He became vice-president and treasurer of the company shortly afterwards, and was an active factor in the affairs of the concern until two months before his death. He is survived by a widow, two sons, and a daughter. Henry H. Salisbury, his eldest son, who for five years has been connected with the company, succeeds him as vice-president and treasurer.

* * *

The Chicago Belting Club is becoming an active factor in the local trade and appears to be the nucleus of what may some day be a more comprehensive organization among the members of the rubber trade. The club, which is composed of the leading belting men of the city, was formed about three years ago. The meetings are held once a month, with a representative attendance. One of the questions which absorbed the attention of the members at the last meeting was the practice of some concerns in making no charge for the installation of a belt.

"No apology can excuse an evil practice of this kind," said one of the members, in telling of the discussion of the matter at the club meeting. "We feel that we are paying our men good wages all day long, and that if they do a service for somebody else, even a customer, we should have some sort of recompense."

THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

THE rubber business in this city continues good, with the factories busy and continuing to show increases in production. In tires, the combined output of the Akron factories has been for some time, it is claimed, at the rate of 30,000 tires a day, a total never before realized, and fully one-third greater than at the same time last year. The situation in the automobile industry is expected to influence the future production of tires to a considerable extent. It is predicted that within a short time there will be only two general classes of automobiles, the high priced car and one priced at $1,200 or less—which will probably result in a demand for three classes of tires, one of extra high quality, another of medium price and a popular-priced tire which would necessarily have to be inferior in quality to the present standard. Manufacturers here are understood to be making preparations to meet this expected demand.

An employee of one of the large companies, lately returned from Russia, is authority for the statement that Russia has placed orders for $15,000,000 worth of automobiles in the United States, the tire equipment for which is largely the product of Akron factories.

* * *

The B. F. Goodrich Co. is operating its plant day and night, having contracts on hand which will necessitate a production of 11,000 tires a day for many weeks to come. This rate of production has been maintained since early in the year, and

means a 50 per cent. increase over the output of the first five months of 1914. This company is also increasing its output of footwear, and the new eight-story building on which work has been started will be devoted in great part to this line of manufacture. In the mechanical goods department new men have been taken on to handle the orders coming in from the railways, the first orders of their kind given out for more than a year, and therefore quite generously large. All of which appears to serve as a reasonable basis for rumors of a dividend soon to be declared on Goodrich common stock.

The manufacturing departments are not the only active branches of this large organization, however. The "Safety First" bureau is equally active. In an address to Goodrich foremen and superintendents on the subject on how accidents can be prevented, Victor T. Noonan, director of safety of the State Industrial Commission, recently stated that ten per cent. of all workmen in Ohio are killed or injured every year. It is the aim of the Goodrich company to reduce the percentage in its own factory to the minimum.

In connection with its welfare work among employees, the company has donated the property formerly occupied by its chemical department for the use of the Goodrich Athletic Association, which is composed of all the young men in the employ of the company. It has also contributed a share of the $2,500 fund collected to convert this property into a first class baseball and athletic field. And it has lately completed an addition to its employees' restaurant, so that now 2,500 to 3,000 persons can be served in half an hour. In facilitating the work of its executive departments, new telephone service has recently been installed, so that at the present time it has in its plant 21 trunk lines, with 308 stations.

* * *

The condition of the business of the Firestone Tire & Rubber Co. is indicated by the fact that, although two large wings have recently been added to this great plant, plans have been prepared for two additional factory buildings, a representative of the company stating that: "We have got all the efficiency possible out of the present plant, and in order to get more efficiency and catch up with orders we must increase our facilities." These and other additions contemplated, to be completed during the year, will add 45 per cent. to the present factory floor space.

* * *

Mention was made in these notes in the June issue of a new rubber enterprise organized by P. E. Werner, of this city. A company has since been incorporated in New York under the name of the Kansas City Tire & Rubber Co. This company has purchased the business of the Chester Rubber Tire & Tube Co., of Chester, West Virginia, which has been in operation for the past two years, besides which it expects to take over and equip another plant in Kansas City within a very short time for the production of tires and other rubber goods. Philip Freshwater, general manager of the Chester company, is associated with Mr. Werner in the new enterprise, together with W. W. Wuchter, who has been identified with tire manufacture for the past twenty years, first with The B. F. Goodrich Co., then as superintendent in the Firestone plant, and later becoming president and general manager of the Swinehart Tire & Rubber Co.

* * *

At the Miller Rubber Co.'s plant work is being rushed on additions that will give three acres more floor space than the present accommodations afford. These include one six-story building and three one-story additions, all of which are to be completed by fall. The Miller company is considering the possibility of moving the tire division of its plant to Kenmore, ten acres along the canal, recently purchased, being in preparation for a move of this kind if it should be finally decided upon. Besides being cramped for room, the Miller plant has been at a disadvantage in the matter of its water supply, which is obtained from wells. Such a move would leave all the Akron buildings for the sundries division, which is now so rushed that it is believed it would before long be able to completely occupy the present plant. An increased demand for surgical rubber goods and rubber gloves, in which this company specializes, has been a feature of the business of its London branch since the outbreak of the war.

Jacob Pfeiffer, president of the Miller company, who recently returned from a trip to South America, expresses his belief that "ship subsidies" is the only means by which the manufacturers of the United States can successfully compete for the trade of the South American republics.

* * *

The Goodyear Tire & Rubber Co. has announced plans for three new buildings, one an eight-story factory building, and two seven-story additions, to cost in the neighborhood of $400,000. This company is making a special bid for foreign trade, having recently sent representatives to Buenos Aires, to Australia and to India, to establish agencies, feeling that the competition of European manufacturers who have hitherto enjoyed most of the business in foreign countries will not be hard to meet at the present time, the needs of the nations at war demanding most of the European tire output.

Reports are current of phenomenal tire production records in the Goodyear plant, with 14,394 tires as one day's output. The continued daily capacity of the plant is said to be about 12,000 tires, and, besides a large increase in the mechanical department, the additions mentioned above are intended to increase the tire capacity to 15,000 a day.

An unfortunate accident occurred at the Goodyear plant on the evening of June 9, when an explosion blew off one side and part of the roof of plant No. 2, killing one man, August Fuerst, and inflicting painful injuries on another, Harold Neiderhauser, a chemist. The damage done to the building is placed at $2,000, and the cause of the explosion is not known.

Between 8,000 and 10,000 people from Akron and vicinity attended the annual picnic of the Goodyear Relief Association, at Cedar Point, on June 19.

* * *

The Falls Rubber Co., of Cuyahoga Falls, not far from Akron, is rushing work on its factory additions. Besides the three-story building, 80 x 200 feet in size, started late in May, a power plant is also being erected at the rear of the factory. The additions will provide space for 500 more workmen.

The Marathon Tire & Rubber Co., of the same place, expects to have its new four-story and basement plant ready for occupancy by July 10. This building covers an area of 196 x 300 feet, and will cost in the neighborhood of $100,000.

At the plant of the Kelly-Springfield Tire Co. here both the pneumatic and truck tire forces are working day and night, sales having increased more than 85 per cent. over those of the corresponding period last year. Some minor building operations are going on at this plant.

The Swinehart Tire & Rubber Co. has recently completed one new building 65 x 100 feet, and another almost as large will be completed early in July.

* * *

The grounds of "Elmcourt," the beautiful home of A. H. Marks, vice-president of The B. F. Goodrich Co., in this city, are being still further improved. This property since its purchase a few years ago has been transformed by the introduction of trees, shrubs and flowering plants. Wells have been driven from which water is pumped to form an artificial lake stocked with fish, and on which boating is enjoyed. There is also a fine bathing pool. And now a brook is being introduced. A large trench is being excavated, banked on both sides with rocks

to give it an appearance of naturalness, and through this trench, down the sloping lawn to the swimming pool and the lake, water at the rate of 22,000 gallons an hour will be pumped, three engines and pumps having been installed to keep the brook in motion.

F. A. Seiberling, president of the Goodyear Tire & Rubber Co., was a speaker at the first banquet of the Men's Alumni Association of Buchtel College on June 12 at Young's hotel. The attendance numbered 200, including some of the city's most prominent officials.

W. F. Pfeiffer, secretary and general manager of the Miller Rubber Co., with Mrs. Pfeiffer, is now in the West on a vacation trip that will include San Diego and San Francisco.

F. I. Reynolds, who has been for several years associated with the Diamond and Goodrich companies, has resigned his position as manager of automobile tire sales for the latter company. He has given out no plans beyond those for the present summer, which is to be spent in rest and recreation.

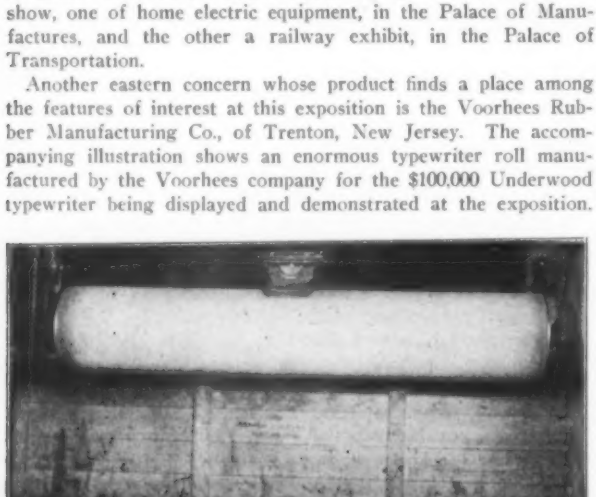
The Goodyear Aero Club, an organization composed of about 40 factory and office employees of the Goodyear Tire & Rubber Co.—most of them graduates of technical schools and interested in ballooning as a sport—recently elected E. R. Preston president for the coming year. The club has the use of the balloon "Goodyear," in which, it will be remembered, Ralph Upson and R. A. D. Preston made a winning flight from Paris in the international balloon race of 1913.

THE RUBBER TRADE ON THE PACIFIC COAST.

By Our Regular Correspondent.

AMONG the eastern exhibitors at the Panama-Pacific International Exposition now being held at San Francisco, one whose line of manufactures is well known and of special interest to the rubber trade is the General Electric Co., of Schenectady, New York. This company, which maintains a San Francisco office in the Rialto building, has two exhibits at the show, one of home electric equipment, in the Palace of Manufactures, and the other a railway exhibit, in the Palace of Transportation.

Another eastern concern whose product finds a place among the features of interest at this exposition is the Voorhees Rubber Manufacturing Co., of Trenton, New Jersey. The accompanying illustration shows an enormous typewriter roll manufactured by the Voorhees company for the $100,000 Underwood typewriter being displayed and demonstrated at the exposition.



RUBBER ROLL FOR A MAMMOTH TYPEWRITER.

This typewriting machine is 1,728 times larger than the standard machine, and weighs 14 tons. Some idea of the platen, or roll, may be obtained by a comparison with the standard sized machine shown on top of the large roll in the illustration. This illustration fittingly demonstrates the calls made on the ingenuity and skill of the rubber manufacturer, who must be prepared for any emergency in the use and adaptation of materials for the thousands of requirements of ever increasing diversity.

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The Western Auto Sub-Casing Co., of Los Angeles, has installed a new machine built to demonstrate the advantages of tires equipped with sub-casings. This machine is intended to impose on the tire the same strain encountered in ordinary use. It consists of two wheels, one a rasp wheel to produce friction, and the other equipped with an inflated tire, which is applied to the rasp with a degree of pressure equal to the weight of a car.

* * *

A new durable tread is now being made by the Colorado Tire & Leather Co., of Denver, Colorado. While this tread is built along the lines of the treads previously made by this company, being applicable over ordinary tires and having steel studs, it is also new in some respects. In principle the tread resembles the ordinary pneumatic casing, being held on the rim in the same way, without hooks or other fastenings. It is built up of several layers of rubberized or frictioned fabric, with a tread portion consisting of chrome tanned leather carrying steel rivets. The entire tread fits tightly over the tire, without wrinkles, excluding water, sand, etc., and eliminating possibility of creeping or chafing.

* * *

San Francisco is now fully abreast of the times in the matter of transportation, possessing every type of car and motor bus best adapted for this purpose. In addition to the "jitney" and motor car service in the city, an interurban line has been established between San Francisco and San Mateo, and intermediate points. Specially built coaches, equipped with "Nobby" tread tires, are in use in this service.

The tire companies generally report excellent business. The Kelly-Springfield Tire Co., which only a few months ago made a central distributing agency of its San Francisco branch, is reported to have increased its sales over 60 per cent. during the first three months of the reorganization, with excellent prospects for the future. B. F. Wolff, formerly connected with the Savage Tire Co., has recently become identified with the sales force of this branch of the Kelly-Springfield company.

The Republic Rubber Co., of Youngstown, Ohio, through its coast selling organization, the Republic Rubber Co. of California, has established a direct branch at Spokane, Washington, taking over the stock of tires, belting and hose of the Interstate Rubber Co. of that city, formerly agent for the line.

The Goodyear Tire & Rubber Co., of Akron, Ohio, has appointed James E. Power San Francisco agent for its truck tires, and a service station has been established in connection with the salesroom at this point.

* * *

M. L. O'Brien, who joined the forces of the Savage Tire Co., of San Diego, the first of the year, after four years' representation of the Diamond and Goodrich companies on the coast, following three years spent in Akron rubber factories, has been promoted from the management of the factory branch to a position as assistant to the secretary of the company, in charge of sales at the home office. H. H. Eitzen, who also joined the company in January, after several years' work in various branches of the tire trade, has been appointed branch manager to succeed Mr. O'Brien.

The India Rubber Trade in Great Britain.

By Our Regular Correspondent.

AS was generally anticipated, the India Rubber Manufacturers' Association has agreed upon an advance of from 10 per cent. to 15 per cent. in the selling price of goods, thus coming into line with the action previously taken by the Silvertown company and the North British Rubber Co., Limited. This is due to a variety of causes other than the actual price of raw rubber. Expenses all around are heavier and outside of government work there is no pronounced activity. That there has been no particular rise in the value of the commodity despite large government contracts is explained by the fact that the amount of rubber being used is much the same as in normal times. It must be remembered that though large orders for ground sheets and waterproof clothing have been in evidence, the amount of rubber consumed is not large. Further, admiralty orders, which call for a good deal of rubber, are also given out quite frequently in peace times, ship building of late years having been carried on continuously. There has, of course, been a large demand for tires for the war, but this has been offset to some extent by a decreased general demand.

This reference to tires may be amplified by the remark that a recent tour in Scotland showed me the extent to which the American tire invasion is making itself felt. The present situation in the matter of European tire manufacture favors this competition. I was informed that in country districts there was a difficulty in getting supplies of certain well-known British tires, and this has led to the sale of other tires not so well known but not necessarily of less utility. One such tire which came specially under my notice was the Burnett. This is made by the Burnett Motor Tyre & Rubber Co., of Limpley Stoke, near Bradford-on-Avon. This tire, which was, I understand, brought out by Mr. Burnett when engaged at the Avon Rubber Co., Limited, has until recently been made by other manufacturers for the company, but is now being made at the company's own works which were started a few months ago.

Leaving this topic, I may note that the energetic recruiting which is going on tends naturally still further to deplete the labor market and to add to manufacturers' difficulties in departments where women and girls cannot well be employed.

The dignified rejoinder made by THE INDIA RUBBER WORLD in the editorial columns of the May issue to the attack of the "Gummi-Zeitung" has, it need hardly be said, been well received by the British rubber trade. It was, of course, written before the great sea catastrophe which at the moment is engaging the close attention of American diplomacy and was strictly in keeping with that neutrality which for so many months has characterized genuine American trade journalism.

FORTHCOMING SCIENTIFIC MEETINGS.

The British Association for the Advancement of Science is to hold its annual meeting at Manchester in September. The proceedings will be limited to business, the social functions which are always a feature of these meetings having been abandoned. It will be interesting to see whether the eminent chemists associated with synthetic rubber have anything new to say. The Society of Chemical Industry, which has many American members, also holds its annual meeting in Manchester, in July, but rubber does not so far appear in the list of subjects announced for discussion.

RECLAIMED RUBBER.

The announcement that the German Government has offered a prize of £5,000 for a successful method of regenerating old rubber is interesting if only as admitting that no really successful method is yet known, despite the various processes utilized in preparing the brands of reclaimed rubber which are now so largely sold and used. If the ideal reclaimed rubber is obtained as a result of this offer, the price paid cannot be considered as at all excessive. High freights are at present a cause of considerable worry to those selling American reclaimed in Europe, the charge being more than six times that prevailing in normal times; and, of course, this adds materially to the selling price. As an offset to this, there is the fact that no scrap rubber is coming to England from Germany, and reduced supplies are being received from other countries; difficulties thus arising in turning out stocks of identical composition as in the past.

With regard to ocean transport, I hear that one of the important lines from America to England has refused to carry reclaimed rubber, on the ground that it is liable to spontaneous combustion. I don't know what the basis is for this statement, as I have never heard of a case with regard to the ordinary American product. I have only known of danger in connection with freshly ground crumb rubber or the sort of reclaim which is sometimes made at rubber works by heating crumb rubber with rosin oil. No doubt one result of the war will be that Germany will endeavor to supply her own requirements of reclaimed rubber. At the outbreak of hostilities one of the very largest German rubber works was buying large quantities of alkali reclaimed from England. The firm in question had previously established a plant for reclaiming on the same lines as the English company supplying it, but the venture was not a success for some reason or other.

A year or more ago I referred to the new reclaiming works being erected by the Xylos Rubber Co., Limited, at Trafford Park, Manchester. These works are now running full swing though their completion was delayed beyond the time originally anticipated. The capacity of the plant at present is about 20 tons of reclaimed rubber per week. The process employed is the modification of the alkali process according to Kugler's patent, and it is claimed for the product which is being marketed as true reclaimed rubber, that it is a distinct improvement on competitive brands and represents a new feature in reclaiming. The works, which are constructed throughout of reinforced concrete, are electrically driven by 3-phase British Westinghouse company motors, the electricity being derived from the municipal supply. All the machinery installed is of the most modern design, the elimination of manual labor being a prominent feature.

GENERAL NOTES.

The Rubber Regenerating Co., Limited, of Manchester, has presented to the British Red Cross, and is operating at its own expense, a 20 horse-power "Sunbeam" ambulance motor car.

A fire which occurred at the extensive rubber works of Charles Macintosh & Co., Limited, Manchester, on May 21, adds another to the list of similar outbreaks which have occurred in works engaged on government contracts and all of which have been due to the ignition of naphtha vapors. The fire did not assume any very serious proportions and caused no delay in the completion of government contracts.

A company known as Grimston Tyres, Limited, has been formed, with a capital of £6,000, to continue and expand the business carried on for some years at St. Albans as the St. Albans Rubber Co., an agreement having been adopted with Viscount Grimston, who was the moving spirit of the rubber company. The first directors are the Viscount and his father, the Earl of Verulam, who already holds directorships in numerous companies. New machinery has been installed at the works, and I understand that the intention is to embark upon the mechanical trade generally. One of the new mixing rolls is stated to be the largest in use in Great Britain.

RUBBER SUBSTITUTE TRADE IN SPAIN.

Most of the rubber substitutes employed in Spain are floating qualities and are principally used in the manufacture of bottle rings, bicycle tires and the like. Sulphurized oil is the base of all of these substitutes. The usual black sort is used in manufacturing pneumatic tires and tubes; the white quality in all sorts of technical rubber goods.

The floating qualities were formerly furnished by German firms, in 2,000 to 20,000 pound lots, at prices varying from $9.50 to $10.12 per hundredweight. The ordinary brown qualities were furnished by these firms at prices varying from $6.19 to $7.74 per hundred pounds, and the white qualities were sold at from $8.09 to $9.23 per hundredweight.

At the present time Spanish manufacturers are experiencing considerable trouble in obtaining rubber substitute. Many who made their purchases in Germany and France are obliged to get what they can from England, as both German and French manufacturers have ceased exporting rubber substitutes; and exports of these substitutes from England are only allowed under condition that the Spanish manufacturer intends to use them for his own needs and will neither export the raw material nor the finished article manufactured therefrom.

Most of the Spanish rubber factories are in Barcelona, and vicinity; there is only one factory in Madrid. This is the firm of L. Paris y R. Catin, 64 Calle Zurbano, which is now working night and day to supply the needs of that city, which is quite a large market for rubber goods. An important Barcelona firm is G. Klein, 61 Calle Princesa.

A FRENCH EXPLANATION OF THE GERMAN RUBBER SUPPLY.

Under the heading "The Key to a Mystery," a French contemporary says: "The Germans have been cut off from crude rubber supplies for over six months and their stock of this material was small in August, 1914, yet they continue to use rubber tires freely. The secret of this is said to be in their application of a process for reclaiming rubber invented by a Frenchman, E. Ronxeville, whose discovery never received the serious attention of French rubber interests."

GERMAN RUBBER EXPORTS TO THE ORIENT.

Before the war broke out Germany did a considerable business in rubber goods with the Balkan States and the Orient. According to German reports, this trade was continued on an extensive scale until the German government placed an embargo on exports of rubber manufactures, only coming to a dead stop with the attack on the Dardanelles by the allied fleets. Most of the sales were made from goods in stock when the war broke out, and these were disposed of at very good prices. The fact that these German rubber manufactures could be sold at premium prices in spite of the difficulties of trade gives German rubber manufacturers great encouragement for the future of their export trade.

Their only serious competitor appears to have been an Italian firm which was offering goods at normal prices until the German manufacturers experienced difficulties in making deliveries, when the Italian firm increased its prices from 10 to 15 per cent. Outside of considerable quantities of rubber sold in Bucharest and Sofia, there was practically no competition on the part of Russia, and there was little or no French or British competition. Necessarily many shipments were made in foreign neutral bottoms, and this increased the freight charges from 4 to 6 per cent. German sellers assumed these extra expenses, while war insurance was, as a rule, charged to the purchaser. The usual course of settlement was to have the purchaser pay by check to the seller's agent, allowing a suitable discount for cash. Shipments with bill of lading attached were also made in a considerable number of cases.

Fluctuations of exchange are always a difficulty in Oriental trading, but a particular complication for German exporters was the disposition of Orientals to do all their business in French gold. Orders on Paris would not have been paid to German or Austrian holders, and only a limited number could be obtained on Swiss and Italian banks. But by some sort of mutual agreement between the German sellers and their Eastern customers, the drafts came to Berlin and Vienna for settlement. Very few Oriental purchasers took advantage of moratoriums, and no difficulties were experienced in collections. When the allied fleets attacked the Dardanelles and put an end to sea shipments, practically all the Oriental trade of German rubber manufacturers came to an end. Shipments by rail are few and far between, for the difficulties and delays are too great for this traffic to be practicable.

RUBBER IN THE EUROPEAN WAR.

The great conflict now raging is distinguished from all former wars not only by reason of the vast area it covers and the unprecedented number of men involved, but in many minor ways as well. For instance, in no former war has rubber played any considerable part, but in this war it is a factor of commanding importance. The huge armies now facing one another rely on rubber for their own transportation as well as for the transportation of their food, ammunition and other supplies. Their immense automobile transport system could not exist were it not for rubber tires. Despatch riders rely on automobiles, motorcycles and bicycles. The commanding officers no longer travel on horseback, but in motor cars; and the wounded are carried to the rear in auto ambulances made easy by pneumatic tires. Rubber plays an all-important part in the balloons and aeroplanes that are the eyes of modern armies, and it is used in insulating the thousands of miles of wires of the intricate telephone systems which link together every detachment of the vast armies.

The extensive trench fighting which characterizes this war would have claimed the lives of many more men had it not been for the possibilities of rubber. Rubber boots and socks, rubber trench capes and coats, rubber ground sheets and rubberized tents have made it possible for men to exist with comparative health and comfort under most unwholesome conditions. The European soldiers are using folding rubber water buckets and rubber horse-troughs. These are but a few of the hundreds of uses to which rubber has been put in this war.

RUSSIA'S IMPORT DUTY ON RUBBER GOODS.

According to the tariff schedule of March 13, 1915, the following rates of duty are imposed on imports into Russia: On crude rubber and gutta percha, also rubber waste unfit for use as manufacture, 1 ruble 80 kopeks per pood (2.57 cents per pound); on rubber-covered wire containing wire not less than 1 millimeter in thickness, 6 rubles 16 kopeks per pood (8.78 cents per pound); containing wire of less than 1 millimeter in thickness, 7 rubles 70 kopeks per pood (10.98 cents per pound); wire tissues in the form of a bunch or cable, covered with gutta percha, etc., with diameter of the separate wires 0.2 of a millimeter or more, 17 rubles 80 kopeks per pood (24.26 cents per pound), less than 0.2 of a millimeter, 19 rubles 47 kopeks per pood (27.77 cents per pound). On silk covered wires 50 per cent. is added to the above duty. On electric cables of all kinds the rate is 7 rubles 37 kopeks per pood (10.48 cents per pound).

A conference was recently held in Petrograd to determine the amount of foreign credit that will be required by Russia in the near future for her industrial undertakings and certain trading houses. Estimates then made—based on imports for the year 1913 and for the first six months of 1914—of the value of the goods of paramount importance that would be required, included rubber to the value of 40,000,000 rubles, or $20,600,000.

The Rubber Trade in Germany.

By Our Regular Correspondent.

THE occupation of conducting a trade publication in a country engaged in war and shut off from most of its supplies of materials, is not altogether an easy one. The habit acquired through long years of giving news as it is compels a presentation of facts as they actually exist, and at the same time the desire to present the situation in as encouraging a light as possible makes it an editorial duty to be cheerful and optimistic. These two opposing forces are liable to result in contradictions.

For instance, in a leading rubber journal here we read in one number that the rubber sporting goods industry has been almost obliterated by the war, that no new goods are offered and that the old goods—some of them quite shopworn—are priced at such a high figure that purchasers are few. In the next number we find the statement that large quantities of footballs, tennis balls, hockey balls and other sporting goods are being used by the German troops in order to keep the soldiers in good physical condition.

On one page we read that substitutes for rubber are being successfully used in the manufacture of a great many articles, so that the shortage in the supply of crude rubber is not being seriously felt. On another page we are told that the dealers are exceedingly apprehensive as to the effect on the consuming public of the goods now being made from rubber substitutes. They fear that the shortcomings of these articles of substitute origin will be charged by the general consumer against the whole rubber industry and that if in the future these same articles are again made of genuine rubber they will have to overcome a very general prejudice.

PRICE OF BENZOL AND NAPHTHA SOLVENTS.

When Germany was cut off from all sources of supply of crude oil, speculators attempted to get control of this market, and raised prices to such a figure that the German manufacturers were caused a good deal of anxiety. An order of the Imperial Government has established maximum prices for solvents as follows:

	Per 100 Kilograms.	Per Pound.
Pure toluol	45 marks	$0.0486
Naphtha solvent I	43 marks	0.0465
Naphtha solvent II	33 marks	0.0357
Xylol	43 marks	0.0463

These prices are f. o. b. factory, and do not include shipping costs. There will be no interference with existing contracts, either private or governmental, as long as the prices in these contracts do not exceed the maximum prices fixed by the Imperial order.

THE RUBBER HOSE BUSINESS.

The maximum figure in the sales of rubber hose is generally reached in this country during the month of May. This year the figure was very low as compared with previous seasons. Winter continued late, April was an exceptionally damp month, and finally, interest in the fate of the country has distracted attention from the lawns; so very little garden hose was sold. There were absolutely no exports in this line.

GERMANY FOR THE GERMANS.

"Deutsche Arbeit" (German Handicraft) is the name of a new German association, the object of which is to encourage German commerce and industry and fight everything of foreign origin. This association announces that Germans should use nothing but German goods, made from German materials by German workmen.

SILENCE IN GERMANY.

An article entitled "Secrecy," which recently appeared in a trade paper here, reminds commercial travelers in all lines, including rubber goods, that in many of the small places they visit they take the place of newspapers, and that, like newspapers, they should be silent on subjects of vital importance to the safety of the "fatherland." Severe prison sentences have been imposed in several cases on talkative traveling salesmen who have carried too much news from one place to another. The publication referred to believes that under present conditions commercial travelers in Germany should confine their conversation strictly to business, and only make such mention of war and war conditions as may be absolutely necessary.

LEATHER.

Leather has become so scarce and its price so high that German manufacturers using this material in connection with their rubber goods, and otherwise, have been obliged to turn their activities to other lines. Leather straps and belts can no longer be produced for other than military purposes, and substitutes have to be resorted to.

ARTIFICIAL RUBBER AND HEALTH.

German school children having come to use erasers made exclusively of rubber substitutes, the authorities ordered an inquiry as to what effect these erasers might have on the children's health. These substitute erasers contain vegetable oils, glass and mineral powders, and it was thought that through inhaling the dust of the erasers, or possibly through swallowing small pieces, the children's health might suffer. As a result of the inquiry it is stated that rubber substitute erasers are no more injurious to health than real rubber erasers, which also contain many of the same ingredients.

ENCOURAGING THE GROWING OF HEMP.

Hemp is used considerably in the manufacture of hose and other rubber goods, and it therefore is of interest to learn how war is affecting the supply of this important textile. Germany has produced but small quantities of hemp and before the war received most of her supply from Russia and Italy. Russian exports to this country naturally ceased with the outbreak of hostilities and Italy soon placed an embargo on her exports of hemp. Germany was thus thrown entirely on her own resources and she has been doing all in her power to encourage her farmers to develop this line of agriculture. A "Hemp Committee" was formed by the German Hemp Manufacturers' Syndicate, and it has been decided to guarantee a good market to hemp producers. The "Hemp Committee" states that at least 90 per cent. of the German hemp for the coming season will net the producer from 600 to 800 marks to the hectare—or from $58 to $77 to the acre. The Hemp Association furnishes seed free of charge.

EMBARGO.

German rubber manufacturers are complaining, as much as they dare, of the manner in which the Government is enforcing its embargo on exports of rubber goods. A recent ruling makes it a crime to export even the small hand rollers used for glazing photographs, although these contain only a few ounces of rubber.

The Semperit Austrian-American Rubber Works, Vienna, Austria, are reported to have contributed one million crowns ($203,000) to the latest Austrian war loan.

During 1913 the imports into Bulgaria of crude rubber and gutta percha and rubber manufactures amounted in value to $159,418, as compared with a value of $286,991 for the same class of imports in 1912.

Rubber Production in the Malayan Peninsula.

By Our Regular Correspondent.

IN its annual report for the twelve months ending March 31, the Planters' Association of Malaya records "a marked tendency for the premium on 'fine hard' over 'plantation' to disappear, until the embargo on rubber exports from Great Britain gave Para an advantage in American markets."

The output of rubber from the whole Malayan Peninsula amounted to 47,006 tons, which compares with previous years as follows:

1906	tons	430	1911	tons	10,782
1907		885	1912		20,327
1908		1,629	1913		33,641
1909		3,340	1914		47,006
1910		6,504			

The probable production of the Peninsula for 1915 is put at 61,800 tons. The figures relating to exports are equally interesting, showing, as they do, a considerable increase in the direct export of rubber from the Straits to America:

To—		1913.	1914.
United Kingdom	tons	29,994	37,733
Continent of Europe		1,654	2,032
Ceylon		818	1,235
America		2,703	5,815
Other countries		522	642
Total		35,691	47,475

In this connection the report states that the Singapore market steadily grows, 3,685 tons being disposed of at the 1914 auctions, against 1,695 tons in 1913, and 599 tons in 1912. Making allowance for the terms of business, prices have compared very fairly with London prices. Regular public auctions have likewise been held at Penang, Malacca and inland towns.

AREAS PLANTED IN MALAYA.

At the end of 1906 there were approximately 100,000 acres planted with rubber in the Peninsula. Owing to the incompleteness of returns from the various territories, it is not possible to quote accurate statistics, but according to the most probable estimate it is believed that the following list of annual plantings will give an approximately correct view of the present extent of the industry in British Malaya:

Previously planted	acres	100,000
1907		76,000
1908		58,000
1909		56,000
1910		71,000
1911		118,000
1912		83,000
1913		66,000
1914		42,000
Total		670,000

At present, further extensions are on a much more modest scale, but they have by no means come to an end, capital raised for this purpose being in some cases not yet fully expended, while in others the application of profits to this end is relied on to compensate for initial over-capitalization.

ROUGH AND READY VALUATION.

While more scientific methods of valuing rubber have not, says the report, so far been adopted by the buyers, some nearer approach has been made to a rough and ready standard, judged by feel and appearance. "Standard crêpe" and "Standard smoked sheet" are now well understood terms, and in methods of manufacture to meet the demand for these grades there has been steady improvement. Factory administration has likewise advanced in increased cleanliness of preparation and waste-saving methods. Various new methods of curing have been introduced and have met with more or less favor, but the great majority of estates adhere to one or other of the above-named forms for turning out their crop. In the market there has on the whole been a preference shown for smoked sheet during the past year.

Referring to the prospective demand for the product, it is remarked that in the face of the cessation of a large proportion of the demand for articles of luxury in rubber, the satisfactory level of prices is plainly ascribable to its importance—imperfectly appreciated in advance—as a munition of war. Apart, however, from the uses of motor traction in campaigning, the war consumption of horse flesh has doubtless greatly stimulated the employment of the mechanical vehicle for civilian purposes. This latter should prove to be a permanent effect.

RUBBER AND THE WAR.

Presiding at the annual meeting of the Java Amalgamated Rubber Estates, Herbert Wright gave some interesting statistics dealing with the present and future prospects of raw rubber. He stated that as against a total crop of plantation rubber last year of about 65,000 tons, this year there would be approximately 80,000 tons. Tapping would take place on all the areas planted in rubber prior to and during 1909. The total area in this category is 600,000 acres, calculated to produce this season 75,000 tons. A further 5,000 tons might be added on account of areas planted early in 1910. America, he said, would take this year a tonnage of raw rubber equivalent to the whole of the plantation output (80,000 tons). America had always been the biggest importer and for years in succession had taken more plantation and less wild rubber. American activity in raw rubber was the real index of the market, and the increased import by that country this year was in accordance with anticipations. For the last three years the rubber imported by the United States was, in round figures, 40,000, 50,000 and 60,000 tons; so that the figures of 80,000 tons for this year was only slightly above the normal annual increase. This year we had already exported, during four months only, nearly 15,000 tons to the United States, and it was common knowledge that Eastern centers had added to this total. At this rate America would take, during the present year, 10,000 more tons of plantation rubber than she did last year. Estimating 80,000 tons for America, the balance in tonnage of the world's production, about 45,000 tons, could be apportioned according to fancy among European and Far Eastern countries. Even this country could take almost half the balance. Assuming that the war continued, there would not be sufficient rubber to go round, and steady, if not advancing, prices could be assured. Even without war this would have been a year when production would not have kept pace with the normal increase in consumption.

AFTER THE WAR.

Assuming for the sake of argument that the war would be over in 1916, Mr. Wright asked, "What would be the position afterwards?" Up to 1910 there was planted in the Middle East approximately 750,000 acres, and this should yield about 100,000 tons in 1916. In 1911 a further 200,000 acres were planted, from which 10,000 to 20,000 tons might be obtained in 1916. His total estimate of plantation rubber for 1916 was, therefore, from 110,000 to 120,000 tons. This production was based upon the asssumption that price and labor remained satisfactory; if prices or labor conditions were unfavorable, the estimate would not be reached. Plantation rubber was the only variety that could show an increase this or next year. Africa and Brazil together could certainly not exceed their average output, and wild rubber might, for their purposes, be estimated for 1916 at 45,000 tons; giving a total production of from 155,000 to 165,000 tons for the year.

Prior to the war the importance of the various countries was, in terms of consumption,—first America, then the United Kingdom, followed by Germany, Russia, France, Austro-Hungary, Italy and Japan. Though America consumed as much as all

the others put together, the other seven accounted for a consumption of something like 60,000 tons per annum. Furthermore, all the seven countries were participants in the war, and had sustained, or would sustain, increased consumption largely at the expense of accumulated stocks. The Allies could not claim to have a larger amount of manufactured rubber articles today than they had before the war. Germany and Austro-Hungary could certainly not claim to have any stocks beyond those represented by the perhaps considerable amount of contraband they had successfully manipulated. They had, therefore, to allow for urgent requirements on behalf of enemy countries after the war, not merely for daily consumption but for making good the stocks usually held by manufacturers. He believed that, subject to credits being good, Germany and Austro-Hungary would require in the first year after the war not less than 40,000 tons of rubber. The estimated increased requirements of the enemy countries, though slight, would take a fair slice of the increased plantation production anticipated for 1916. He would, therefore, not be at all surprised to find that the enemy countries, together with America, would consume a total tonnage equal to the whole of that which was estimated from plantations for 1916, namely, 110,000 to 120,000 tons. That only left about 45,000 tons for the United Kingdom, France, Russia, Italy and Japan, which was much below their total average consumption. The point he wished to make was simply that the increase in production during 1916 was offset by the depletion of manufactured articles in enemy countries and the impetus which the war would give to the use of rubber in countless directions.

MEETING OF THE PLANTERS' ASSOCIATION OF MALAYA.

Commenting upon the recent meeting of the Planters' Association of Malaya, the "Malay Mail" congratulates the planters on their choice of Mr. W. Duncan as chairman of the association, succeeding the Honorable E. Macfayden. It expresses the hope that, with a planter from Northern Malaya as chairman, the attendance of planters from that part of the colony will in the future be greater at the association meetings. During 1915-1916 an enormous area will come under tapping, and planters fear a labor shortage. The war stopped immigration into Malaya. Indian immigration has begun again, but is still below the normal. Restrictions on Chinese immigration are still in force.

PERAK PLANTERS BELIEVE THE DEPARTMENT OF AGRICULTURE SHOULD DEVOTE MORE ATTENTION TO RUBBER.

In a late issue of the "Malay Mail" reference is made to a resolution recently passed by the Central Perak Planters' Association expressing their disapproval of the work of the Agricultural Department. The association is not satisfied with the control of pests and diseases as carried out by the department and asks the assistance of district associations in supporting a request that the parent association at Kuala Lumpur bring the necessity for better attention and general efficiency to the notice of the Government. The item concludes with the following paragraph:

"The resolution leaves no room for doubt. I am afraid that it is an opinion pretty generally shared by planters throughout the country. There is a general feeling that the department is not doing all that it might to develop the rubber industry."

SPOTS ON RUBBER.

A bulletin of the Department of Agriculture of the Federated Malay States discusses the conditions which favor the formation of spots and the discoloration of rubber, also the methods of prevention. Spotting and discoloration are generally due to common saprophytic fungi (*Penicillium sp. Fusarium sp.*, etc.) which contain proteolytic enzymes. Infection takes place while the latex is being collected. Only under abnormal conditions does the rubber become infected after preparation and while in the drying sheds. The best method of prevention is by treating the latex with formalin, by quick drying of the rubber, by thinner working and addition of "sodium bisulphite." Dilution of the latex with water increases the danger of infection and the tendency toward spotting; and so also will excess of coagulant.

FEDERATED MALAY STATES RUBBER EXPORTS.

An official cablegram from Kuala Lumpur announces that the export of plantation rubber from the Federated Malay States, during the month of May, amounted to 2,708 tons, as compared with 2,777 tons in April and 2,069 tons in the corresponding month last year.

The following table shows the export for the first five months of the last three years:

	1913.	1914.	1915.
January .....*tons*	2,131	2,542	3,473
February	1,757	2,364	3,411
March	1,737	2,418	3,418
April	1,626	2,151	2,777
May	1,225	2,069	2,708
Total	8,476	11,544	15,787

THE THINNING OUT OF RUBBER PLANTATIONS.

The question of thinning out rubber plantations has been much discussed. Opinions on the subject vary considerably. Most planters are of the opinion that 100 trees to the acre is quite the limit for good results, but that it certainly would be a mistake to reduce existing plantations strictly to this number, for allowance must be made for a certain death rate even among healthy trees. One expert explains that the *Hevea Brasiliensis* is practically a swamp tree originating in the lowlands which each year are overflowed by the Amazon river. There it obtains the quantity of water necessary for its full development. With this idea in view he believes all plantations too thickly planted to allow the *Hevea* to reach its normal development.

RUBBER LATEX PREPARED WITH URANIUM BORATE.

The use of uranium borate in the preparation of rubber latex has been recommended to Ceylon planters. It is stated that 8 ounces of this borate to every 100 pounds of latex—equivalent to 8 ounces to each 50 pounds of rubber—when thoroughly mixed with the latex before coagulating considerably improves the appearance of the rubber, prevents oxidation on shipboard and in storage, and at the same time increases the tensile strength of the product.

Of course this addition of uranium borate increases the cost of production of crude rubber, but on the other hand it is claimed that the treatment also increases the value of plantation rubber by from £40 to £50 per ton.

CYCLONE SWEEPS KLANG RUBBER ESTATES.

The damage done the rubber plantations by the storm that swept the Klang district of the Malay Peninsula in April is estimated at £250,000. The tornado struck the rubber plantations at a time of the year when they are most susceptible to injury. The rubber trees had finished their wintering and were in full bloom, bearing heavy foliage, and were naturally unusually tender. The storm followed a well defined course, but at points varied in intensity. In one section of about 20 acres not a tree was left standing. A rough estimate places the number of trees destroyed at 47,000.

A hurricane recently swept over the Lunas Rubber Estates (Selangor), breaking and uprooting 1,450 mature rubber trees. Some of these trees may possibly be saved, but they will not be fit for tapping for a long time. Young trees with their light foliage did not suffer from the wind. Slight damage was also done to the buildings on the estate.

TWO AMERICAN PLANTING COMPANIES.

The eighth annual reports of the Pahang Rubber Co., Limited, and the Tanjong Olok Rubber Co., Limited, of Malaya, have recently been issued, covering the year 1914. The list of officers and directors in these two companies includes the names of Albert and Fred T. P. Waterhouse, of The Waterhouse Co., Limited, Honolulu, Albert Waterhouse being secretary and Fred T. P. Waterhouse treasurer of both companies. On the Pahang plantation, which is located at Cheroh, Pahang, the average number of trees tapped daily throughout the year was 53,781, the total tappings being 19,630,139. The production of dry rubber for the year amounted to 202,326 pounds—an increase of 77,966 pounds over the output of 1913—the average yield per tree being placed at 3.76 pounds, as against 2.73 in 1913. Total expenditures on the 1914 crop amounted to $42,266 ($7,602.74 of this amount being for permanent improvements), as against $28,177.65 in 1913. The cost of tapping was 14.46 cents per pound, while the total operating expenditures on the estate, including this item, amounted to 40.98 cents per pound. The average price obtained for rubber was 44.77 cents per pound. The net profits for the year are placed at $2,257.88 and the gross sales at $94,875.67. The manager's estimate of production for 1915 is for 285,000 pounds of rubber.

Labor is the chief difficulty on this estate, it being practically impossible to keep a permanent force. Government work on railroads having been suspended for the present, to a certain extent, a larger number of hands are procurable than usual, and the price of labor has fallen off somewhat. The average daily wage of coolies on this estate during the year was 45.96 cents. The average number of coolies employed per day was 163, and the average collection of rubber per day for each coolie was 3.40 pounds.

The Tanjong Olok estate covers an area of 2,532 acres, of which 980 acres is planted, 70,823 trees of the 134,338 total being of tapping age. The output for the year was 202,943 pounds, on which the all-in costs totaled 29.4 cents per pound. The net profit for the year is given at $17,378.31, the gross sales at 199,521 pounds, valued at $93,066.75; the average price for all grades being 46.645 cents, gold, at Singapore. An average of 57,015 tappings were made daily on this estate, or a total of 20,810,467 during the year, at a cost of about 32⅓ cents per tree per year; and the average amount of rubber obtained per tree at each tapping was approximately .156 ounces, or 3.56 pounds, for the year. The estimated output for 1915 is 270,000 pounds.

EFFECT OF WAR ON EASTERN RUBBER PLANTATIONS.

From all available information it is clear that Eastern rubber plantations are weathering the war storm much better than even the most optimistic expected. Save for the high freights and the shortage of shipping facilities there is nothing for plantations to complain of. Rubber is slowly advancing and some hope exists that it will again reach the *2s. 6d.* figure. There is no danger of rubber falling below remunerative prices, at least not in the near future. When the war comes to an end, no doubt immense quantities of rubber waste will be reclaimed, but there will also be a general renewal of strictly commercial manufacturing and consequently the chances are that crude rubber will still be needed in large quantities.

SINGAPORE RUBBER AUCTIONS.

Auction sales of rubber are held in Singapore under the auspices of the Rubber Association of the local Chamber of Commerce. This association lists practically any lot of rubber, even lots of less than a picul or 133⅓ pounds. This results in considerable delay at auctions and a movement is now under way to expedite the conduct of sales by fixing a minimum weight for the cataloguing of rubber lots. It is proposed that no lots of less than 3 piculs (400 pounds) shall be catalogued. A leading broker on the Singapore market believes that better prices can be obtained on large parcels than on small ones, and he advises his customers to hold their scrap until they have at least 3 piculs of it. Small quantities will continue to be sold by private tender.

STRAITS SETTLEMENTS RUBBER EXPORTS.

An official cablegram received from the Colonial Secretary, Singapore, states that the export of plantation rubber during the month of April amounted to 1,978 tons, as compared with 2,477 tons in March and 1,548 tons in the corresponding month last year.

The following is a comparative table showing the export for three years:

	1913.	1914.	1915.
January .....*tons*	784	1,181	2,576
February	743	1,703	2,741
March	898	1,285	2,477
April	762	1,548	1,978
Total	3,187	5,717	9,772

These figures include transhipments of rubber from various places in the neighborhood af the Straits Settlements, such as Borneo, Java, Sumatra and the non-Federated Malay States, as well as rubber actually exported from the Colony, but do not include rubber exports from the Federated Malay States.

INTERESTING EXPERIMENTS.

Some time ago the Department of Agriculture in Ceylon prepared a small quantity of Para rubber by the Wickham process and forwarded it to the Imperial Institute, London, for experiments. Samples of crêpe rubber from trees of the same age on the same plantation were also sent to London for comparison. The Imperial Institute furnished samples of both rubbers to a number of British manufacturers who were glad to make technical tests in order to determine the quality of the rubber for industrial purposes. The reports of these manufacturers are quite interesting. One manufacturer reported that the crêpe rubber was about 8 per cent. better than the smoked from his point of view as a manufacturer and that the smoked sample contained 5.07 per cent. of resin. He declined to make any statement comparing the samples with fine hard Para.

Another firm found that the samples of smoked rubber furnished contained 3.77 per cent. of resin. The experimental department of this firm also noted that in mixings where an accelerator was present the Wickham rubber had decidedly clearer cutting properties than hard fine Para. On the other hand, when no accelerator was added to the mixing the reverse was the result, and the sample appeared in this respect to be of about the same value as ordinary smoked sheet. More efficient vulcanization was obtained with the Wickham rubber than with the sample of crêpe. The former was superior in strength to the crêpe, but still below fine hard Para, the variation being about 10 per cent. in each case. No advantage over smoked sheet plantation was discovered in the samples tested. Extensibility or strain tests showed the experimental samples much weaker than fine hard Para, and also even below the average for ordinary plantation, smoked and unsmoked. The firm that made these experiments believes the Wickham method of smoking, in which the whole of the rubber is penetrated by the smoke, to be preferable to the ordinary method of preparing smoked sheet in which the smoke is only superficial. Still another firm that experimented with the Imperial Institute samples found that the crude rubber was about 8 per cent. better than smoked block for industrial purposes.

In view of the great variance in these reports and of the impossibility of explaining them, the Imperial Institute is carrying out a series of vulcanizing and testing experiments with the remainder of the rubber.

EFFECT OF TAPPING ON THE STORAGE OF PLANT FOOD IN HEVEA BRASILIENSIS.

A very interesting pamphlet on the above subject, written by L. E. Campbell, rubber research chemist, was recently published by the Ceylon Department of Agriculture. After describing the structure of the *Hevea*, Mr. Campbell explains that starch is the principal storage form of plant food and that by observing to what extent the starch has been removed and reconstituted, it is possible to determine the extent to which the strength of the tree has been drawn upon in tapping it. Most of the food stuff, which consists in sugar and starch, is formed in the leaves of the plant. Sugar is soluble in water and it is in this form that food is carried by nature to the parts of the tree that need it. When the tree is tapped the bark needs food to rebuild the severed tissues. When the supply of food is greater than is necessary for renewing the bark, it is converted by nature into a form of starch which is insoluble in water and stored in this form until required, when it is again converted into sugar and conveyed from the storage cells to the part of the tree where it is needed. Therefore an adequate supply of food is necessary for health and good bark renewal.

With this theory in mind Mr. Campbell carried out a number of experiments by examining tapped trees for the presence of foodstuff to obtain indications as to the most suitable tapping systems for the maintenance of this starch reserve. Two trees, planted in 1906 and tapped first in July, 1913, were taken for experiment. They were tapped during six months on the full herring-bone system, tapping taking place every third day and one side only being tapped. It was determined that the food supply of the bark did not, during the experiments, disappear from below the tapped area, but only from an area extending about a half inch in width below the cuts and about one-third inch in width to the side of the cuts, the process of bark renewal causing the removal of starch food immediately behind the cut. Other experiments made by Mr. Campbell on different *Hevea* trees throughout Ceylon led him to conclude that the effect of careful tapping is localized around the cuts and that food for bark renewal is rarely drawn from below the tapped area. And from this he concludes that intervals between tapping are of great benefit to the reconstitution of the bark and that the resting period of each area tapped on the change-over system, i. e., the full herring-bone with five cuts one foot apart over one-half the tree—the tapping being changed over from one side of the tree to the other every six or eight weeks—is nearly as effective as if the whole tree were allowed to rest. This change-over system appears to be effective both in renewing the bark and in increasing the rubber yield of the tree.

FUNTUMIA ELASTICA IN BELGIAN CONGO.

Funtumia elastica grows wild in the forest of the Bangala district, Belgian Congo. Plantations were started in 1904 at Musa and Kutu. Those in the latter place did not give satisfactory results and have since been abandoned. Experiments have been made with 620 trees from eight to nine years old at Musa. Tapped on alternate days over a period of ten to eleven days, twice each year, these trees yielded about 6 ounces of dry rubber per annum, equivalent to 164 pounds of dry rubber per acre, per year. The cost of production was high, amounting to about 14 cents per pound, owing to unskilled tapping. With plantation *Hevea* rubber at 58 cents per pound, the *Funtumia* product was valued at 54 cents.

A correspondent on one of the daily papers published in the East advances the opinion, based on considerable observation on his part, that rubber tappers who work by the day bring in less No. 1 rubber and a larger quantity of scrap than is the case with contract tappers, who naturally are more anxious to bring in the best quality of rubber and are less concerned with the lower grades; consequently the contract tappers are more alert and more successful, in his opinion, in gathering first quality rubber.

RUBBER EXPORTS FROM THE DUTCH EAST INDIES.

The following comparison of the exports from Sumatra and Java for January, 1915, and January, 1914, shows that there has been a substantial increase in the volume of exports. But the most interesting feature of this tabulation is the fact that, while in January, 1914, no rubber was shipped direct from Sumatra to the United States, and but very little from Java, the direct shipments in January of the present year from both of these islands to this country amounted in the aggregate to nearly 430,000 pounds.

EXPORTS FROM SUMATRA.

To—	January, 1914.	January, 1915.	—Decrease. +Increase.
Holland .....*pounds*	136,477	208,714	+ 72,237
England	528,323	772,246	+143,923
United States	.....	237,784	+237,784
Singapore	28,340	7,917	— 20,423
Penang	248,287	29,266	—219,021
Total	941,427	1,255,927	+314,500

EXPORTS FROM JAVA.

To—			
Holland .....*pounds*	282,539	105,576	—176,964
England	221,549	445,111	+223,562
Germany	1,498	.....	— 1,498
Belgium	43,690	.....	— 43,690
Other Europe	6,185	.....	— 6,185
United States	20,064	188,795	+168,731
Singapore	19,030	25,623	+ 5,593
Other countries	.....	19,554	+ 19,554
Total	594,555	784,659	+190,104

RUBBER EXPORTS FROM JAVA AND MADURA.

During March exports of rubber from Java and Madura amounted to 286,270 pounds, against 337,891 pounds exported during the same month last year; showing a decrease of 51,621 pounds. During the first three months of 1915, 1,007,015 pounds of crude rubber were exported, as compared with 883,403 pounds exported during the same period in 1914; showing an increase of 123,612 pounds.

A CENTRAL RUBBER TESTING STATION FOR THE DUTCH EAST INDIES.

The creation of a central rubber testing station for the Dutch East Indies, which was practically decided upon at the Rubber Exposition at Batavia, is the realization of a scheme that has long been recognized as a necessity.

This station will be installed in Batavia with branches throughout the colony, and its principal object will be to investigate improved methods of preparing and curing rubber, to create standards for the classification of qualities of crude rubber by exercising a regular control over the monthly shipments, and to issue certificates bearing on the quality of the rubber.

MEETING OF RUBBER MEN AT THE HAGUE.

At the general meeting of the International Association for Rubber-Cultivation in the Netherland Indies, held at The Hague on May 20, the council presented their report for the year 1914 and the program of work for 1915. The chairman, A. G. N. Swart, and the retiring members of the council—J. F. de Beaufort, Dr. A. H. Berkhout, Jacques Bernard, Noël Bingley, P. C. Bruyn and Ed. Bunge—were re-elected, and A. Ed. Dinger, director of the "Internationale Crediet- en Handelsvereeniging Rotterdam"; F. de Fremery, director of the "Deli-Batavia Rubber Maatschappij," and O. F. Weise, partner in the firm of Weise & Co., were elected to the vacancies in the council caused by the deaths of W. Geuken, F. Koch and Jac. Musly.

RUBBER TRADE IN SHANGHAI.

During 1913, 3,822 pairs of rubber shoes for Europeans were imported at Shanghai, as compared with 2,124 pairs imported for same trade in 1912. Only 1,402 pairs of rubber shoes made specially for the Chinese were imported in 1913, as compared with 26,868 pairs imported in 1912; showing a decrease of 25,466 pairs.

PRESENT CONDITIONS OF THE RUBBER MARKET AT MANAOS.

By a Special Correspondent.

FOR years the world has been hearing but one kind of sound from the Amazon—that of complaint and distress. We are told unceasingly that the Amazon is a lost case since her principal produce—fine Para—lost the control of the world's rubber market, owing to the phenomenal growth of plantation production and the consequent reduction in price of the commodity.

The few voices which timidly asserted confidence in the latent power of the country to adapt itself to new conditions and to come out of the struggle victorious in the end, did not succeed in making themselves heard. Nor is it surprising that this should have been so, since those concerned with plantations in the East had an interest in demoralizing the Amazon as much as they could, in order to draw public attention away from the primitive home of the *Hevea* in the direction of their own enterprise, never losing an occasion to preach the downfall of the great rubber center. Not only this, but the majority of the leading men on the Amazon, in their efforts to get help and concessions from the Federal Government, joined the general chorus of distress, helping to make the whole world believe that the end of the rubber industry had come.

There can be no doubt that the sudden and violent fall in prices wrought havoc on the Amazon; fortunes were lost—the fruit of a lifetime of hard work and never-ceasing enterprise in combating and overcoming the enormous difficulties which nature and climate prepared for the daring *seringueiro*. Values were annihilated, property became almost worthless, credit ceased entirely, and public finances—based almost exclusively upon the production of rubber—reached a condition bordering on bankruptcy.

But they who counted upon the definite annihilation of the Amazon rubber industry ignored—whether purposely or not—the strength and elasticity of the country. To the attentive observer signs of nascent restoration on the Amazon, from the economic-financial point of view, are beyond doubt; to those well versed in Amazonian affairs they come as no surprise.

As a matter of fact, for many years there has been too large a margin of profits in the rubber-gathering industry, entailing as a natural consequence the reduction of productive work to a minimum and raising unproductive expenditure to a maximum. Economy was at one time a word unkown on the Amazon—the fury of spending was the order of the day, both for the individual and for public administrations.

There have been several crises upon the Amazon in former years, all forgotten as quickly as they came, because invariably the direct cause of such crises disappeared within a short period.

When the present debacle set in, people were not inclined to take it too tragically, relying on the good star of the country to point the way out, as had been the case so often before. Consequently, careless life and expenditure, uneconomical working, and the never-ceasing discounting of the future went on for a time, aggravating the situation rapidly, until a point was reached when the Amazonians awoke to the fact that they were on the wrong track.

From that moment two different movements could be distinguished. One was directed by the official element, and many of those who found themselves on the verge of ruin through the great shrinkage of values in all property assets in the interior, called out for help from the Federal Government; the *Defeza da Borracha* was created but proved a complete failure. It is not the object of these lines to discuss the reasons which caused this effort of the Federal Government to be a fiasco; it is certain, however, that with the amount of money that was then sacrificed something profitable could have been done had better judgment of the needs of the Amazon prevailed.

All the same, one distinct advantage resulted—a considerable augmentation of the subvention paid to the Amazon River Company in exchange for cheaper freight rates all over the Amazon and its affluents, together with better and more regular shipping facilities on the upper rivers.

Apart from this, the effort of the Federal Government was pure waste, and the latter, with this result before their eyes, will not be likely to embark on another such venture. Nevertheless, the Amazonian people continued in their appeals for help, painting the situation as black as possible. In doing so they are right as far as the Amazonas and Para State and municipal governments are concerned, for these are crippled with debts incurred when everything looked rosy and there seemed to be no limit to the continuous increase of revenues.

Now, seeing themselves faced with a greatly curtailed income, quite insufficient to meet the current expenses and those of the heavy obligations formerly assumed, and unable to increase taxation of the population, they revert with reluctance to the cutting down of public expenditure and probably, as time goes on, they will succeed in making both ends meet.

In the meantime, however, their cries of distress give a wrong idea of the real situation on the Amazon as far as rubber production is concerned. In fact, while this part of the Amazonian population practically obtained nothing, their system working directly against Amazonian credit and resulting in the almost complete cessation of credit not only in the United States and Europe but also in the Argentine and in Brazil itself, another party got to work unostentatiously.

Accepting the actual situation of Amazonian rubber with regard to the plantation product as a consummated fact, they did not look back on departed prosperity, but sturdily took the matter in hand in a practical manner: they set out to cheapen production, and lo! what before had seemed almost impossible proved to be quite possible.

Business was placed on a more solid basis; shipping was run on more economical lines; a closer control of the *seringueiros* was inaugurated; the *aviamentos* (the out-fittings) were reduced, and the people living in the woods were induced to plant the greater part of the crops they needed for food, such as beans, mandioca, cane, etc. The rubber gatherers were held to their work for a longer season, which isn't even then a desperate effort, considering that the average *seringueiro* seldom works much over 100 days in the year, although there is no reason why he should not work for at **least 200 days.**

Naturally, increased rubber-gathering effort was confined to places of relatively easy access, as are all the lower parts of the upper rivers with regular shipping communication with Manaos. The results are plainly seen already.

The following data give a fair idea of the evolution the Amazon is undergoing:

Imports from Manaos to the interior decreased from 1,259,984 volumes—59,723 tons—in 1912, to 823,870 volumes—38,257 tons—in 1914. And in spite of this decrease of almost 35 per cent. in merchandise sent up the rivers, entries of rubber (*Hevea*) at Manaos for the first nine months of the present crop—July 1 to March 31 last—increased from 17,900 tons during the last crop, to 18,120 tons for the present crop.

This increase of about 220 tons of *Hevea* rubber for the nine months of the crop may appear insignificant at first sight, but if we consider that the output on the upper rivers, especially the Federal Territory, suffered a decided decline and that this was made up by a larger production on the lower parts of the rivers, the results of the efforts of Amazonian and more especially the Manaos people, become evident. In fact, the output of the rivers which do not reach the Federal Territory, viz., the Madeira, Solimoes and Rio Negro, increased from 6,382 tons to 7,167 tons, or a plus of 715 tons for the nine months.

Under these conditions, Manaos commerce is far from being distressed—in fact, the present crop has not only been satisfactory in quantity but prices have also left a satisfactory margin. Lower exchange has contributed to this result, but there is no doubt that

should sterling prices drop farther, the Amazon is now in condition to face the situation and to cheapen and increase production still more. The initial steps have proved entirely successful. And "as there is a vast forestal reserve of *Hevea* at hand all over the country—only 5 to 10 per cent. of which is being explored at present—there is no reason why Amazonian production of Upriver Fine should not go on increasing, no matter what the price of plantation rubber will be."

The foregoing data refer only to *Hevea* rubber. The total exports from Manaos, including the *Castilloa* product known as caucho and caucho balls, show a deficit of about 2,400 tons for the nine months of the crop, owing to the decrease of about 2,600 tons in the output of the latter description, which is almost exclusively produced on the headwaters of the rivers, the work being chiefly done by Peruvians. In an increase of production of this quality Amazonians have but a secondary interest, the more so as this industry requires a nomadic population, which does not contribute to the settling and populating of the country as does the *Hevea* industry.

THE RUBBER CRISIS IN BOLIVIA.

THE rubber situation in Bolivia has been treated very thoroughly in this publication, but it is always interesting to note how conditions appear to new observers, especially to experienced travelers. The Scandinavian explorer, Nordenskjold, paid a recent visit to that country, and the results of his explorations and the conclusions at which he arrived are briefly given in the following paragraphs:

Since 1880 rubber has been the principal source of wealth in northeastern Bolivia, just as it is the principal article of trade in large districts of Brazil and Peru. Bolivia's rubber forests lie on the banks of the Rio Beni, the Rio Madre de Dios, the Rio Abuna and the Rio Guaporé. All the rubber gathered in this district is taken by boat or steamer to such centers as Riberalta and Villa Bella, where it is marketed and shipped either to Europe or to North America. Rubber merchants conduct their dealings with rubber gatherers on an exchange trade basis, food, spirits, wines, firearms, phonographs and the like being given in exchange for rubber. Rubber gatherers are obliged to provide themselves with food in the market centers, for in the rubber districts they cannot find sufficient supplies. Labor has been a great problem for Bolivian rubber merchants, and to obtain it they have often resorted to slave trade methods, so few are willing to volunteer to penetrate the deep forests.

Plantation rubber has become a severe competitor of South American rubber, and the fall in rubber prices has brought this Bolivian industry practically to a standstill. Many believe that the history of Bolivian—and in fact all South American rubber—will be a repetition of that of Peruvian bark. It was in 1820 that two French explorers brought news of the qualities of this bark and started the quinine trade. Asiatic plantations now supply practically the whole of the world's demands for quinine and South American districts where bark was formerly gathered for quinine are now turned over to the monkeys and the jaguars.

Many believe that Bolivia will have to turn to agriculture and cattle raising as substitutes for its lost rubber trade. For this better means of communication will have to be established, and perhaps the Panama Canal will prove of considerable help in this connection.

These prophecies apply to a great extent to the Brazilian and Peruvian rubber industries, as well as to that of Bolivia. In other words, the South American rubber crisis is far-reaching in its effects, and, should prices continue to fall after the war, practically the whole population of the Amazon valleys will have to seek new means of existence, and this certainly will not be an easy matter. No doubt the struggle against plantation competition will be kept up to the last extremity largely at the expense of the *seringueros*.

PLANTATIONS OF HEVEA BRASILIENSIS.

The area under *Hevea* in British Guiana in 1912-1913 was 2,800 acres, and during that year over 110,000 stumps were imported from Ceylon and Surinam, while 120,000 plants were raised from seeds imported from Ceylon and the Straits Settlements.

In Nyasaland, British Africa, where the Africa Lakes Corporation, Limited, has a plantation of about 100,000 *Hevea* trees from one to seven years old, the trees are reported to be about two years behind those of Ceylon in growth, but tapping experiments give very satisfactory results.

BRITISH GUIANA EXPORTS.

From January 1 to May 20 of the present year there were exported from British Guiana 730,536 pounds of balata and 825 pounds of rubber. In the same period of 1914 the balata exports amounted to 314,278 pounds, and no shipments of rubber were made. Of the 1915 balata exports, 637,299 pounds was sent to the United Kingdom and the balance, 92,257 pounds, to the United States.

EXPORTS OF RUBBER AND BALATA FROM PANAMA.

The rubber and balata industry of the Republic of Panama showed for 1914 (except for exports of balata from the City of Panama) a considerable decrease as compared with the previous year. The total exports of rubber from the isthmus republic amounted in value to $10,770, against $19,116 in 1913. The exports of balata amounted to $94,822 as compared with $108,714 for the previous year. The decrease in the value of exports of balata is attributed to the fall in the prices of this gum, which amounted to about 40 per cent. In 1913 Panama balata brought from 48 to 56 cents per pound, as compared with 30 cents per pound, the average price in 1914. During 1914 the port of Panama exported balata for the first time, these exports amounting to $28,963. This was due to the fact that balata and its development had never before received serious attention on the Pacific coast of Panama, where its character and commercial value were little known. All the exports of both rubber and balata from the Republic of Panama were shipped to the United States.

COTTON IN ARGENTINA.

Cotton is grown in many parts of Argentina, but especially in the Chaco district. Argentine cotton has been exported chiefly to Germany and Spain. In 1913, 1,540 bales were exported, and in 1914, 1,219 bales. This, compared with 2,460 bales exported in 1912, shows that the Argentine cotton industry is retrograding.

A Spanish capitalist recently applied to the Argentine Ministry of Agriculture for 12,355 acres of land located in any part of the cotton-growing zone at a reasonable price on easy terms of payment, his purpose being to install a complete cotton mill of 12,000 spindles and 400 looms, to handle cotton from the raw product to the finished article, including bleaching and dyeing of the manufactured goods. This offer is receiving the consideration of the Argentine government.

TIRES IN ARGENTINA.

In Buenos Aires, Argentina, where automobiles are used extensively and where the asphalt streets are frequently washed and consequently are very slippery, a municipal decree compels the use of a steel-shod tire on at least one rear wheel. A great many of the automobiles seen on the streets of that city are equipped with at least two such tires, and many, especially the best, cars have all four tires of this type. The steel-shod tire is also favored in the matter of tariff duties, the duty and incidental charges on all-rubber tires being 50 cents gold per kilo. [24.94 cents per pound], while that on the steel-shod tire is 42 cents gold per kilo. [18.38 cents per pound].

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED MAY 18, 1915.

No. 1,139,597. Pneumatic tire. R. S. Stratton, Orillia, Ont., Canada.
1,139,702. Vehicle wheel rim. E. Q. Moses, assignor to The B. F. Goodrich Co.—both of New York, N. Y.
1,139,850. Mask for divers. C. H. Conkle, Cleveland, Ohio.
1,139,942. Moistening device. R. J. Wightman, Newark, and W. B. Powell, East Orange—both in New Jersey.
1,140,045. Core retaining device. M. D. Kuhlke, Akron, Ohio.
1,140,242. Tire core. M. Bracey, Thomasville, Ga.

Design.

47,371. Tire. W. H. Yule, assignor to The B. F. Goodrich Co.—both of New York, N. Y.

Trade Marks.

81,379. Mishawaka Woolen Manufacturing Co., Mishawaka, Ind. The word *Yukon*. For rubber footwear.
81,541. Beacon Falls Rubber Shoe Co., Beacon Falls, Conn. The words *Grip Sure*. For basketball shoes.
82,310. The Sterling Gum Co., Inc., New York, N. Y. The words *World's Fair* with 1915 in the center. For chewing gum.
85,280. C. J. Bailey, Boston, Mass. Representation of a monkey, with the words *Monkey Grip*. For heels and soles for boots and shoes, wholly or in part of rubber.

ISSUED MAY 25, 1915.

1,140,370. Vehicle tire. J. R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.
1,140,418. Toy or joke article. A. Talke, Nieder-Goellschau, Goldberg-Haynau, Silesia, Germany.
1,140,499. Core for use in molds and forms. J. G. Chalfant and H. G. Haun—both of Akron, Ohio.
1,140,511. Blanket for printing press cylinders. N. J. Gauthier, Berwyn, and F. J. Gauthier, Chicago—both in Illinois.
1,140,527. Distention device for tubular structures. P. Powell, Cambridge, assignor to Standard Tire & Rubber Co., Boston—both in Massachusetts.
1,140,577. Heel pad mold. S. Cooke and W. C. Davis—both of Gorton, Manchester, England.
1,140,590. Anti-skid attachment for tires. A. Gorecki, Buffalo, N. Y.
1,140,591. Automobile tire. T. A. Hall, Cleveland, Ohio.
1,140,602. Cement applying machine. W. F. Lautenschlager, Cincinnati, Ohio, assignor to L. Muther, Boston, Mass.
1,140,625. Bait receptacle with elastic top. E. Spitzler, Boise, Idaho.
1,140,635. Rubber heel. J. M. van Heusen, Jamaica Plain, Mass.
1,140,645. Pneumatic cushion for automobiles. E. A. Wilcox, Carthage, Ill.
1,140,718. Puncture closer for pneumatic tires. R. W. Sampson, Westmount, Que., Canada.
1,140,729. Machine for wrapping annuli. P. E. Welton, Akron, Ohio.
1,140,752. Vehicle tire. W. K. Leonard, Piqua, Ohio.
1,140,777. Pneumatic tire. W. D. Trigalet, Mamaroneck, N. Y.
1,140,778. Tire construction. W. D. Trigalet, Mamaroneck, N. Y.
1,140,921. Method for forming gas bags or other fluid retaining envelops for airships or other purposes. T. Sloper, Devizes, England.

Trade Marks.

84,063. The Republic Rubber Co., Youngstown, Ohio. The word *Invader*. For fabric and rubber belting, rubber hose and rubber machinery packing.
84,064. The Republic Rubber Co., Youngstown, Ohio. The word *Relief*. For fabric and rubber hose.
84,985. McTernen Rubber Manufacturing Co., Reading, Mass. The word *Korker*. For rubber heels.
85,810. Essex Rubber Co., Trenton, N. J. The words *Shed Wet*. For rubber and leather composition soles.
85,852. Lambertville Rubber Co., Lambertville, N. J. The words *One Door*. For rubber balls.
85,853. Lambertville Rubber Co., Lambertville, N. J. The word *Blanket*. For rubber balls.
85,854. Lambertville Rubber Co., Lambertville, N. J. The word *Rainbow*. For rubber balls.

ISSUED JUNE 1, 1915.

1,141,116. Life saving suit. J. Horvath, Cherry Valley, Pa.
1,141,227. Rubber heel. I. R. Bailey, assignor to the Goodyear Tire & Rubber Co.—both of Akron, Ohio.
1,141,273. Life saving suit. P. Simon, Perth Amboy, N. J.
1,141,311. Cementing machine. M. F. Brogan, Lawrence, Mass., assignor to United Shoe Machinery Co., Paterson, N. J.
1,141,382. Tire weaving machine. A. L. De Leeuw, Cincinnati, Ohio.
1,141,496. Vehicle wheel rim. E. C. Shaw, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.
1,141,537. Pneumatic tire. H. B. Gillette, Grand Rapids, Mich.
1,141,538. Pneumatic tire. H. B. Gillette, Grand Rapids, Mich.
1,141,606. Brake and brake liner. W. T. Bonner, assignor to The Asbestos Brake Co.—both of Trenton, N. J.
1,141,620. Tire. F. Dexter, Vista, Fla.
1,141,635. Loom. A. H. Henderson and J. T. Mahon, assignors to The Henderson Rubber Co.—all of Baltimore, Md.
1,141,641. Resilient tire. E. Jacquemin, Kent, Wash.
1,141,656. Sleeve protector comprising elastic band. S. Rosenbaum and B. Finkelstein—both of Los Angeles, Cal.
1,141,697. Tire lining. L. P. Des Lauriers, Ware, Mass.
1,141,708. Method of making tires. J. H. Hill, Wilmington, Del.
1,141,723. Vehicle tire. T. R. Palmer, Erie, Pa.
1,141,754. Garment supporter. J. H. Bancroft, New York, N. Y.
1,141,908. Vehicle tire. W. H. Boyes, Brooklyn, N. Y.

Trade Marks.

83,545. Automobile Tire Co., Inc., New York, N. Y. The word *Surety*. For rubber pneumatic outer automobile tires or casings and rubber pneumatic inner tubes.
83,640. The Horace Partridge Co., Boston, Mass. Representation of a seal with a partridge and the word *Partridge's*. For tennis balls, golf balls, etc.
84,247. The Portage Rubber Co., Akron, Ohio. The word *Portage*. For rubber vehicle tires.
84,898. Germantown Almegum Manufacturing Co., Philadelphia, Pa. The word *Mogul*. For rubber, leather and fabric tires.
85,320. Pioneer Shoe & Rubber Co., Minneapolis, Minn. Representation of an eye with the words *Bull's Eye*. For waterproof clothing.
85,498. J. M. Van Heusen, Boston, Mass. A large *U* with the word *Man*. For rubber heels.

ISSUED JUNE 8, 1915.

1,141,918. Pneumatic wheel. G. W. Atkinson, Denver, Col.
1,142,042. Method of making tire covers. J. T. Johnson and F. G. Mason—both of Caulfield, Victoria, Australia.
1,142,509. Waterproof pocket for bathing suits. A. Ellman and S. Paull, assignors of one-third to S. Gitelman—all of New York, N. Y.
1,142,526. Vulcanizing apparatus. C. E. Miller, Anderson, Ind.
1,142,560. Hand stamp. H. S. Folger, Chicago, Ill.
1,142,561. Hand stamp. H. S. Folger, Chicago, Ill.
1,142,698. Flexible rubber cup. E. W. Grove and G. P. Crumbaugh—both of St. Louis, Mo.

Designs.

47,424. Pneumatic tire. H. R. Holmes, Toronto, Ont., Canada.
47,431. Automobile tire. H. J. Leab, assignor to Fisk Rubber Co.—both of Chicopee Falls, Mass.

Trade Marks.

84,791. E. W. Burt & Co., Inc., Boston, Mass. The words *Rotor Heel*. For leather and rubber heels and rubber inserts.
85,435. F. M. Fargo, Chicago, Ill. Representation of a shoe and a chicken with the words *Little Chick*. For children's shoes of leather, rubber, etc.
85,606. C. W. Ebeling, Elm Grove, W. Va. The word *Chi-Lax*. For chewing gum.
85,644. T. J. Mulcahy, Winthrop, Mass. The word *Encore*. For chewing gum.

UNITED KINGDOM.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1914.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 12, 1915.]

1,102 (1914). Roller for use in grinding and mixing plastic substances for calendering, etc. J. H. Nuttall and D. Bridge & Co., Castleton Ironworks, Castleton, Lancashire.
1,111 (1914). Rubber sponge. P. Schidrowitz and H. A. Goldsborough, 57 Chancery Lane, London.
1,199 (1914). Washing and like machines for rubber, etc. W. G. Gass, Atlas Foundry, Nelson street, Bolton, Lancashire.
1,200 (1914). Washing india rubber. W. G. Gass, Atlas Foundry, Nelson street, Bolton, Lancashire.
1,232 (1914). Mattress composed of a number of inflatable sections. L. E. Patrix-Navarre, S. Slot and P. Benjamin, 27 Denligh Place, London.
1,253 (1914). Rubber heel tread for boots. F. Sieg, 14 Schiller-Platz, and R. Volkner, 3 Oelmuhlenstrasse—both in Bielefeld, Germany.
1,312 (1914). Beer cooling apparatus comprising rubber blocks or rubber-faced metal supports. F. Brewster, Station Hotel, Altrincham, Cheshire.
1,353 (1914). Mouthpiece for regenerative breathing apparatus. Maschinenfabrik "Westfalia" Akt.-Ges., Gelsenkirchen, Westphalia, Germany.
*1,401 (1914). Elastic leather, comprising a layer of rubberized crimped leather combined with an elastic body. L. Heimann, 78 Walker street, New York, U. S. A.
*1,403 (1914). Circular loom for tubular fabrics, etc. E. C. R. Marks, 57 Lincolns Inn Fields, London. [Chernack Manufacturing Co., Pawtucket, R. I., U. S. A.]
1,426 (1914). Rubber covered web feeding rollers. A Livesey, 3 Brierley street, London Road, Manchester.
*1,539 (1914). Rubber tired spring wheel. A. V. Mitchell, 1529 New Hampshire avenue, N. W., Washington, U. S. A.

*1,571 (1914). Protective band for pneumatic tire, comprising layers of rubber. J. E. Lee, Conshohocken, Pa., U. S. A.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 19, 1915.]

1,726 (1914). Wheel tire. J. A. and T. H. Challiner, "The Glen," Anson Road, Victoria Park, Manchester.

1,817 (1914). Heel friction pad. W. C. H. P. and F. A. Hedgecock, 5 Market street, Brighton, Sussex.

1,883 (1914). Utilizing waste rubber. E. Lapisse, 19 Rue de Montbazon Tours, France.

*1,886 (1914). Water bag. R. B. Whitmarsh, 624 Majestic Theater Building, Los Angeles, Cal., U. S. A.

1,916 (1914). Machine for cutting india rubber tubes into sections to form rings, washers, etc. Bertrams, Limited, St. Katharine's Works, Sciennes, and R. F. Gillespie, 58 Arden street—both in Edinburgh.

2,003 (1914). Golf club with soft rubber striking face. L. Anderson, Croft House, Whitworth, Rochdale, Lancashire.

2,016 (1914). Pneumatic tire cover. J. W. Anderson, 29 Hess street South, Hamilton, Ont., Canada.

2,070 (1914). Natural or synthetic caoutchouc. F. E. Matthews and E. H. Strange, 50 City Road, London.

2,139 (1914). Felloes and spokes of wheels made from layers of coir fabric or fibres impregnated with rubber, or alternating with layers of rubber. Coir Tyre Co. and G. D. Rose, Northern Assurance Buildings, Albert Square, Manchester.

*2,217 (1914). Rectal syringe of the water bottle type. A. C. Eggers, 16 Exchange Place, New York, U. S. A.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, MAY 27, 1915.]

2,246 (1914). Wheel tire. J. A. and T. H. Challiner, "The Glen," Anson Road, Victoria Park, Manchester.

2,269 (1914). Rubber-treated rings for universal joints. E. J. Hardy and E. J. Hardy & Co., 116 Queen Victoria Road, Coventry.

2,281 (1914). Coagulating apparatus for india rubber. F. Ripeau, 10 Rue Rodier, Paris.

2,336 (1914). Rubber flooring and paving. A. Johnston, 37 Moray Place, and North British Rubber Co., Limited, Castle Mills—both in Edinburgh.

2,435 (1914). Wheel tire. M. Bovy, 244 Avenue de la Couronne, Ixelles. Brussels.

2,450 (1914). Elastic in bandeaux. G. Godfray, 81 Cavendish street, Keighley, Yorkshire.

2,491 (1914). Syringe. L. G. de La Touche, 47 Boulevard Gouvion-St. Cyr, and H. Guilbot, 14 Cité Trévise—both in Paris.

2,498 (1914). Molding rubber tires. T. Sloper, Southgate, Devizes, Wilts.

2,538 (1914). Latex cup. J. R. Walpole, Broadford, Chobham, Woking, Surrey.

2,581 (1914). Ventilator with rubber cushioning strips. F. Berardi, 6 Via Chiatamone, Naples, Italy.

2,597 (1914). Belting with elastic insertions. F. Gaillard, 8 Heath Road, Harrow, Middlesex.

2,608 (1914). Window fastening with india rubber cushion. G. Powell, 4 Caewallis Road, and G. Powell, Glenview—both in Bridgend, Glamorganshire.

2,627 (1914). Latex coagulating apparatus. H. A. Wickham, Royal Colonial Institute, Northumberland avenue, London.

2,678 (1914). Ball or float valve. J. G. Starr, 51 Denham street, Hawthorn, Victoria, Australia.

2,727 (1914). Post marking machine. W. Lyck, 34 Hauptstrasse, Kevelaer, Germany.

2,739 (1914). Rubber in producing electric oscillations. R. C. Galletti and R. Manzetti, Champagneux, Savoie, France.

2,743 (1914). Elastic device for measuring variation in chest circumference. H. Boller, Weinbergstrasse, Zurich, Switzerland.

2,750 (1914). Bathing cap. W. E. Lomas and L. Lomas, Waterloo Buildings, Piccadilly, Manchester.

2,819 (1914). Wheel tire. T. K. Clark, Wentworth, Durban, Natal.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 2, 1915.]

*2,832 (1914). Wheel tire. M. Clark, 410 Fine Arts Building, Chicago, Ill., U. S. A.

2,887 (1914). Tire tread. North British Rubber Co., Limited, and A. Johnston—both of Castle Mills, Edinburgh.

2,917 (1914). Tread projection for wheel tire. J. M. O'Brien, 10 Rydal Road, Streatham, London.

3,158 (1914). Rubber coated fabric. W. E. Muntz, 6 Breams Buildings, Chancery Lane, London.

3,183 (1914). Window buffer. A. G. Spencer, 77 Cannon street, London.

3,184 (1914). India rubber joint making packing. F. Spencer, 77 Cannon street, London.

*3,228 (1914). Jacket and cover for wheel tire. H. J. Doughty, Edgewood, R. I., U. S. A.

3,279 (1914). Brace having elastic sections. P. L. C. Perceau, Nérondes, Cher, France.

3,391 (1914). Wheel tire. H. E. G. Bateman and L. C. Bateman—both of 18 The Western Broadway, Hammersmith, London.

3,429 (1914). Tread band for wheel tire. F. W. Waggett, 375 Upton Lane, Forest Gate, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, JUNE 9, 1915.]

3,543 (1914). Brush. H. Round, 141 Great Charles street, Birmingham.

3,556 (1914). Wheel tire. C. J. Watts, Hessary, Leigh Road, Southampton.

3,562 (1914). Surgical truss. A. H. Holbein, 12 Kempson Road, Fulham, London.

*3,585 (1914). Machine for making fabric foundations. W. C. Stevens, Akron, Ohio, U. S. A.

3,632 (1914). Coagulating rubber latex. N. W. Barritt, Ashley street, Shrewsbury.

3,643 (1914). Cases for galvanic batteries. J. S. Hamilton, 221 Wightman Road, Hornsey, London.

*3,669 (1914). Wheel tire. J. S. Lyons and G. T. Brown—both of Wilkes-Barre, Pa., U. S. A.

3,770 (1914). Pneumatic tire fabric. J. Bright & Bros., and F. Lye, Fieldhouse Mills, Rochdale, Lancashire.

3,777 (1914). Buoy comprising a body of waterproof material. E. Neufeld, 1 Fenyutca, Budapest, Hungary.

*3,805 (1914). Wheel tire. C. A. Swinehart, Vulcan Rubber Co., Erie, Pa., U. S. A.

3,937 (1914). Suction fastener for securing show cards, etc., to windows or the like. H. W. Rowland, "Rostrevor," Blundel Road, Hightown, Lancashire.

4,074 (1914). Wheel tire. R. V. Broodbank, 17 Reginald Road, Forest Gate, and G. Kensett, "Cheslyn," Blake Hall Road, Wanstead—both in London.

4,105 (1914). Masticating rubber. J. E. Pointon, Westwood Works, Peterborough.

THE FRENCH REPUBLIC.

PATENTS ISSUED (With Dates of Application).

474,879 (May 5, 1915). Detachable interchangeable heel for shoes. E. A. Lamoureux and G. M. Guilleret.

474,929 (January 9). Process for manufacturing and applying a waterproof insulating material. Société Anonyme des Combustibles Industriels.

474,945 (July 9). System for splicing tubes. Société Anonyme de Caoutchouc Manufacturé Continental.

474,947 (July 9). Improved non-slip soles and heels for shoes. J. H. Turner.

475,017 (January 13). Coat tent. Société Anonyme des Filatures, Corderies et Tissages d'Angers.

475,047 (January 14). Fabric designed for wrapping electric wires without extra thickness where edges overlap. P. Gallant.

475,101 (July 13). Tire. L. Henss.

475,117 (January 20). System for attaching mud guards. C. Cesbron and A. Pétard.

475,140 (July 15). Pneumatic tire with puncture proof shield. R. Wapshare.

475,150 (January 22). Elastic wheel for vehicles. R. Dollard.

475,159 (February 20). Improved rubber tires and a perfected system for their attachment and removal. E. B. Killen.

475,170 (July 16). Improved couplings for railway carriages and the like. Société Anonyme Westinghouse.

THE GERMAN EMPIRE.

PATENTS ISSUED (With Dates of Validity).

284,683 (April 18, 1914). Emergency rims with mud guards attached. Friedrich Walter, Helmstedt.

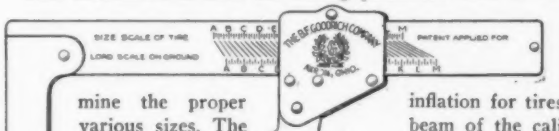
284,708 (June 2, 1911). Process for manufacturing elastic and plastic material. Julius Stockhausen, Crefeld.

284,740 (August 13, 1914). Bandage. Jacob Moll and Dr. W. Lorentz, Lucka.

284,769 (April 22). Vaginal syringe. Walter Uhlendorf, 1 Schützenstrasse, Sonderhausen.

GOODRICH TIRE CALIPER.

This instrument is used for testing pneumatic tires to deter-



mine the proper inflation for tires of various sizes. The beam of the caliper has two graduations, the upper scale showing the size of the tire and the lower the load on the ground. To test a tire the movable arm is set at the point where the caliper will just fit over the tire at the top or point farthest from the ground, and the point of register on the scale is noted. Then the arm is moved to the mark on the lower scale corresponding to this point of register. The tire is then calipered at the bottom, where the load rests on it. If the tire is not flattened so that the sides touch the arms of the caliper it should be deflated until the caliper just slips over it; if the tire is too much flattened to permit the caliper to slip over it it should be inflated until its width under load just equals the distance between the arms of the caliper. [The B. F. Goodrich Co., Akron, Ohio.]

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

THE unusual advance in the spelter market late in May, caused by an unprecedented export movement, resulted in advancing prices of all grades of zinc oxide. During June higher prices have been quoted on white lead, red lead, barytes and litharge, due to the advance of pig lead. The fundamental reason for this upward movement is the steady call for metals in war orders. By the middle of the month pig lead and spelter had sold at record prices. Should the price of zinc oxide become prohibitive the rubber mills will be forced to substitute some other white pigment. Acetate of lime is bringing higher prices, resulting in substantial advances in acetone and acetic acid. The demand for benzol and toluol has fallen off, and manufacturers are now offering these solvents freely. Some of the manufacturers are quoting benzol as low as 35 cents to their regular trade. The capacity of the United States Steel Co.'s benzol plants will be 9,500,000 gallons of crude benzol a year, or 26,000 gallons a day.

Aniline oil is very firm in price, and recent importations from Manchester have been noted. Turpentine has advanced, and linseed oil has been added to the contraband list of Great Britain without any marked effect on the market.

Dry colors have been in a very uncertain position on account of advancing prices in the raw materials which are used in their manufacture. Prussian blues are higher, and the vermilions hard to get. Carbon tetrachloride has advanced about one cent a pound, and is now being quoted at seventeen cents. Aniline oil continues to be difficult to obtain, and until the domestic production is sufficient for all requirements there will be very little offered. Crimson and golden antimony prices are still moving upward, and zinc oxides are quoted at still higher prices subject to change without notice. The United States produces more talc and soapstone than all the rest of the world combined. In 1914 the production was 172,296 short tons, valued at $1,865,087. Of talc alone the United States produced 151,088 tons, and of soapstone 21,208 tons.

The lead market eased off during the latter part of June and pigments were quoted at lower prices. Zinc oxide prices have been forced to record figures on account of the market position of zinc ore and spelter. The latter, however, is declining rapidly. Domestic barytes are now in better demand since the foreign supply has been limited. About 400 casks of lithopone were imported late in the month which was undoubtedly sold ahead, as quotations are difficult to obtain; but domestic lithopone is quoted freely.

Chromite yields strong colors, especially green and yellow. Now that the foreign supply has been cut off, the American deposits will doubtless be developed. The greater part of green oxide of chromium is now imported.

PRICES OF CHEMICALS AND COMPOUNDING INGREDIENTS.
NEW YORK, JUNE 26, 1915.

Acetone (drums)	lb.	$0.23½	@
Acid, acetic, 28 per cent. (bbls.)	lb.	2.50	@ 2.65
glacial (carboys)	lb.	.10½	@ .11
Aluminum Flake (carloads)	ton	18.00	@20.00
Antimony, crimson, sulphuret of (casks)	lb.	.75	@ .80
golden, sulphuret of (casks)	lb.	.60	@
Asbestine	ton	19.00	@
Asbestos	ton	20.00	@50.00
Asphaltum "G" Brilliant	lb.	.03	@
Barium Sulphate, precipitated	ton	65.00	@
Barytes, domestic	ton	16.25	@17.00
foreign	ton	25.00	@
Basofor	ton	75.00	@
Benzol, 90 per cent.	gal.	.90	@ 1.00
Beta-Naphthol	lb.	2.00	@ 2.50
Black Hypo	lb.	.30	@
Blanc Fixe	lb.	.03½	@ .04
Cadmium, yellow	lb.	none	
Carbon Bisulphide (drums)	lb.	.08	@
Carbon Tetrachloride (drums)	lb.	.17	@ .18
Caustic Soda (bbls.)	lb.	.03	@
Caustic Soda, 76% (bbls.)	lb.	2.25	@ 2.50
Chalk, light precipitated (casks)	lb.	.03¼	@ .04
China Clay, domestic	ton	9.00	@15.00
imported	ton	16.00	@35.00
Chrome, green	lb.	.06½	@
yellow	lb.	.13	@
Di-chlorethane	lb.	.10	@ .12
Emarex	ton	70.00	@
Gas Black	lb.	.05½	@ .06½
Gilsonite	ton	37.00	@40.00
Glycerine, C. P. (drums)	lb.	.25	@
Graphite (bbl.)	lb.	.02¼	@
Green Oxide of Chromium (casks)	lb.	.30	@
Iron Oxide, black (casks)	lb.	.05	@ .06
red, reduced grades	lb.	.02	@ .07
red, pure	lb.	.07	@ .12
Infusorial Earth, powdered	ton	50.00	@
bolted	ton	60.00	@
Ivory, black	lb.	.08	@ .12
Indian Red	lb.	.02½	@ .05½
Lampblack	lb.	.04	@ .08
Lead, red oxide of	lb.	.07¾	@
sublimed blue	lb.	.06¾	@
white, basic carbonate	lb.	.06¾	@
white, basic sulphate	lb.	.06½	@
Lime, flour	lb.	.01	@ .01½
hydrated	lb.	.01	@ .02
Litharge	lb.	.07¼	@
English	lb.	none	
Lithopone, American	lb.	.06	@
imported	lb.	none	
Magnesia, carbonate	lb.	.04½	@ .05½
calcined, heavy	lb.	.06¾	@ .09¾
light	lb.	.20	@ .25
Magnesite, calcined, powdered	ton	36.00	@
Mica, powdered	lb.	.03½	@ .05
Mineral Rubber	lb.	.02	@ .04½
Naphtha, stove gasolene (steel bbls.)	gal.	.12	@
66@68 degrees	gal.	.18	@
68@70 degrees	gal.	.19	@
Oil, aniline	lb.	1.30	@ 1.50
corn, crude	lb.	.06½	@ .06¾
linseed (bbl.)	gal.	.57	@ .58
rosin	gal.	.25	@ .55
rape seed, blown	gal.	.87	@ .88
Orange Mineral, domestic	lb.	.09¾	@
Paragol	lb.	.06	@
Petrolatum No. 5 (wood bbls.)	lb.	.03	@
Pine Tar, retort	bbl.	5.25	@ 5.50
Prussian Blue	lb.	.95	@ 1.05
Pumice Stone, powdered (bbls.)	lb.	.02	@ .03
Rosin (280-pound bbls.)	lb.	3.40	@ 6.00
Rubber Black	lb.	.04	@ .04½
Rubber Flux	lb.	.06	@
Rubber Substitute, black	lb.	.06½	@
white	lb.	.07	@
Shellac, fine orange	lb.	.18	@
Soapstone, powdered	ton	8.50	@
Sulphur Chloride (drums)	lb.	.06½	@ .07½
Sulphur, flowers	cwt.	2.10	@ 2.75
Talc, American	ton	12.00	@15.00
French	ton	35.00	@
Toluol, pure	gal.	2.50	@ 3.00
Tripolite Earth, powdered	ton	50.00	@
bolted	ton	60.00	@
Turpentine, spirits	gal.	.45½	@
Ultramarine Blue	lb.	.06	@ .22
Vermilion, Brilliant	lb.	.90	@ 1.00
Chinese	lb.	.95	@ 1.00
English	lb.	1.25	@
Wax, Bayberry	lb.	.24	@
Beeswax, white	lb.	.35	@ .50
Ceresin, white	lb.	.12	@
Carnauba	lb.	.23	@
Ozokerite, refined white	lb.	.65	@
Montan	lb.	.22	@
Paraffine, refined, 118/120 m. p. (cases)	lb.	.03¾	@
123/125 m. p. (cases)	lb.	.04	@
128/130 m. p. (cases)	lb.	.04¼	@
133/136 m. p. (cases)	lb.	.06	@
crude, white, 117/119 m. p. (bbls.)	lb.	.03½	@
yellow, 124/126 m. p. (bbls.)	lb.	.03½	@
Whiting, Alba, factory	ton	9.50	@12.50
commercial	cwt.	.45	@ .50
Paris white, American	cwt.	.70	@ .75
English cliffstone	cwt.	1.00	@ 1.25
Zinc oxide, American process (factory) Horse head	lb.	.08¼	@
"Special"	lb.	.07¾	@
"XX Special"	lb.	.25½	@
French process, green seal	lb.	.25⅛	@
red seal	lb.	.26⅛	@
white seal	lb.	None	
Zinc sulphide	lb.		

There was exported from New York in May to England, 5,660 barrels of zinc oxide valued at $60,585; 750 casks of white lead valued at $38,084; 296,833 pounds, 5 drums and 146 barrels of acetic acid valued at $19,835; 501,601 pounds of acetone valued at $77,784 went to Cardiff, Wales. France took 1,650 barrels of zinc oxide valued at $17,868; 135 casks of white lead valued at $5,855; 5,931 pounds of acetone valued at $1,197, and 11,272 pounds of acetic acid valued at $581. There were 750 pounds of acetic acid valued at $100 shipped to Rotterdam, Holland.

Replete with information for rubber manufacturers.—Mr. Pearson's "Crude Rubber and Compounding Ingredients"

THE MARKET FOR COTTON AND OTHER FABRICS.

THE cotton crop outlook for the United States is very encouraging, with the new planting well started. The decrease in acreage is estimated at 10 to 12 per cent. from the record acreage of last season. The Government's crop report is due July 1 and covers crop conditions to June 25. With the 10 per cent. decrease in acreage, should the figures show an average crop of 82 per cent., the report would be acceptable even to the most conservative.

SEA ISLAND COTTON.

Figures on the Sea Island crop movement from August 1, 1914, to May 25, 1915, show receipts at Southern shipping ports of 69,293 bales, against 92,089 bales for the same period in 1913-1914. Savannah and Jacksonville shipments were 65,813 bales in 1914-1915, against 86,998 bales for 1913-1914. Figures on direct shipments to the mills not being available, it is estimated that 13,500 bales have been moved in these directions. The entire crop is now out of the hands of the planters, with the possible exception of one or two thousand bales.

There has been an estimated increase in the acreage of between 20 and 30 per cent. and the new crop is in a favorable condition. Prices are nominal. Savannah quotations on June 25 were as follows: Choice, 24@25 cents; extra choice, 25@26 cents; fancy, 25@26 cents.

EGYPTIAN COTTON.

Germany was formerly a heavy consumer of Egyptian cotton, but this outlet being closed by the war, over-production and low prices were imminent. The situation was met by curtailing the acreage and prohibiting exports to the continent. Concerning the new crop, the young plants are in good condition, and while no official figures are available at this time, it is estimated that there are 900,000 to 1,100,000 feddans (a feddan equals about 1 1/10 acres) under cultivation. It is reported that the acreage of Sakelarides planted has been increased considerably.

The United States government regulations, coming in force on January 1, 1916, requiring the disinfection of Egyptian cotton, are highly important. Cotton shipped during or before November should arrive in New York or Boston before these regulations become effective. The Alexandria General Produce Association has expressed its views to the United States Government to the effect that the disinfection of the cotton would be out of the question, owing to lack of facilities.

The following are Boston quotations on June 15, 1915: Egyptian—Nubari, $16.00@$18.75; Affifi, $12.25@$18.50; Sakelarides, $18.25@$23.25.

COTTON FABRICS.

The Fabric market has been active during June and prices have advanced with the price of cotton. Pressure for deliveries on contracts placed last fall indicate improved conditions in the rubber goods trade.

There was an increased demand for all kinds of duck during the past month, wide drills and enameling ducks being particularly active, as the auto. top manufacturers, who formerly used foreign materials, are now buying domestic goods. Deliveries on hose and belting ducks have been consistently called for this month and the outlook is favorable for increasing business. There has been considerable buying for export account. The foreign rubber mills are now dependent on American fabrics, as the foreign cotton mills are running on government order exclusively.

The following are New York quotations on June 26, 1915:

Tire Fabrics:		
17¼-ounce Sea Island, combed	*sq. yd.*	$ .58@$ .60
17¼-ounce Egyptian, combed		.45@ .47
17¼-ounce Egyptian, carded		.42@ .44
17¼-ounce Peelers, carded		.35@ .37
Sheetings:		
40-inch 2.50-yd.	*yd.*	.06¾
40-inch 2.70 "		.06½
40-inch 2.85 "		.06¼
40-inch 3.15 "		.06¼
Osnaburgs:		
40-inch 2.25-yd.	*yd.*	.07¼
40-inch 2.48 "		.07
37½-in 2.42 "		.07
Mechanical Ducks:		
Hose duck	*lb.*	.20½
Belting duck		.19½
Carriage Cloth Duck:		
38-inch 2.00-yd. enameling duck	*yd.*	.10½
38-inch 1.74-yd. " "		.11⅛
72-inch 6.66-yd. " "		.25
72-inch 7.21-yd. " "		.26
Drills:		
38-inch 2.00-yd. drill	*yd.*	.10¼
40-inch 2.47-yd. "		.08¼
52-inch 1.90-yd. "		.10¾
52-inch 1.95-yd. "		.10½
60-inch 1.52-yd. "		.13½
Yarns:		
Garden Hose 12/2 cabled	*lb.*	.20
Fire Hose 12/1		.16@.18

New York exports of cotton duck to Europe during May were as follows: To London, 3,088 packages, valued at $122,386; to Liverpool, 17 packages, value at $10,239, and 675 bales of cotton yarn valued at $270,000; to Glasgow, 1,751 packages of duck, valued at $57,391. France took 339 packages and bales valued at $22,203. Fifty-one bales of tire fabrics were shipped to Marseilles, valued at $3,247. Copenhagen received 132 packages of duck, valued at $6,345.

COTTON IN BRITISH COLONIES.

COTTON growing in British Uganda continues to make progress. In 1914, ginned cotton exports from this colony amounted in value to £45,231. The Uganda cotton industry would become much more important were it not for the difficulties of transportation. The whole of the main crop for 1914 was of the Allen's Long Staple variety. Cotton growing in the British East Africa Protectorate is not profitable, except along the banks of the Tana and Juba rivers where irrigation is possible. In the Lake District of the Nyanza Province the climate and soil are quite favorable to cotton growing and it will doubtless become quite an important industry.

In Nyasaland the area under cotton cultivation by European planters amounted in 1914 to 25,097 acres, of which 160 acres were planted in Egyptian cotton and the remainder in the Nyasaland Upland variety. The total exports for 1914 amounted to 6,003 bales of 400 pounds, as compared with 8,093 bales exported during the previous year, this decrease being due to the failure of the crop in some districts. During the same year native plantations produced 1,811 bales of 400 pounds as against 1,126 bales in 1912-13.

Jamaica's 1914 cotton crop was a failure, owing to abnormal climatic conditions. In 1913 the crop was valued at £4,000 and consisted of the Sea Island variety, being grown mostly by small planters in Vere. Following the failure of the 1914 crop Jamaica planters are seeking for a more hardy variety of cotton for general cultivation in the island. A perennial tree cotton has been introduced from Cauto in Cuba and has given good results. In the drier districts of the island this Cauto cotton is expected to become the basis of a reliable cotton growing industry. Experiments have also been made with the Sakelarides and other Egyptian varieties of cotton. The Cauto cotton tree grows wild in southeastern Cuba.

In Fiji cotton growing was started in 1906, when the Lautoka Experimental Station planted seed of two kinds of Sea Island, one of which had been obtained from Barbados, the other from St. Kitts. Good results have been obtained, the yield of lint ranging from 252 to 311 pounds per acre. The cotton produced in Fiji is all medium staple, and therefore more readily salable than cottons of the finer staples, though having larger yields.

Review of the Crude Rubber Market.

NEW YORK.

June 30, 1915.

THE month of June was an extremely quiet one, inquiries were plentiful and several large orders were noted, but general buying was limited. There was little change in prices though there was an upward tendency supported by a steady market in London. It is estimated that 6,500 tons of crude rubber of all sorts was received at the port of New York during May, against 10,148 tons for April.

The usual summer dullness in the rubber mills has not yet made itself manifest and the output of tires continues to make new records. First latex spot sold during the last week of the month at 63 cents and Smoked sheets ribbed were 62¾ cents. Upriver Fine was steady at 62½@63 cents. African sorts are arriving in limited quantities; 177 tons was received in New York during May, against 404 tons in April.

The Rubber Control Committee has passed a resolution recommending that all crude rubber importers, brokers and dealers file the British Rubber Guarantees with the Rubber Club for all plantation rubber arriving in this country from the Dutch East Indies.

Arrivals of plantation rubber direct from Batavia have fallen off considerably. In March there was 338 tons; in April, 392 tons, with no arrivals in May.

Arrangements have been completed whereby plantation rubber can now be shipped to any Atlantic port in the United States consigned to the British consul at New York. The usual form of guarantee is required and passed upon by the Rubber Club. Shipments to Pacific ports are consigned to the British consul at San Francisco and cleared in the same manner.

RUBBER AFLOAT.

The Booth Line steamship "Denis" from Manáos and Pará, was due to arrive June 27 with 180 tons. From Singapore and Colombo there are four steamships en route for New York with rubber cargoes, due to arrive within the next six weeks. There are five steamships from London due to arrive in New York with rubber early in July. The steamship "Hubert" sailed from Pará on May 7, for Liverpool, England, with 272 tons of rubber.

The Booth Line steamship "Benedict" sailed from Para for Liverpool June 5 with 270 tons. The steamship "Anthony," of the same line, sailed from Para for Liverpool June 10 with 340 tons.

LONDON.

The market was quite firm early in June with satisfactory trading in the standard grades. A feeling of uncertainty as to shipments and the possibility of a long war and large military requirements had a tendency to stiffen prices. Standard crepe, spot, was in demand at 2*s.* 5*d.* Smoked sheet, spot, was firm at 2*s.* 4¾*d.*, and Hard Para was steady at 2*s.* 7¼*d.* Inquiries were plentiful and a fairly good business was reported in Standard crepe which is now selling at a premium over Smoked sheet. This is due to the fact that Standard crepe can be used without washing. This saving of time is an advantage in executing Government contracts with a time limit. On June 16 Standard crepe, spot, closed at 2*s.* 5⅜*d.*; Smoked sheet, spot, at 2*s.* 5¼*d.* and Hard Para, at 2*s.* 7*d.* The rumor from Singapore of a decreased production in 1915 is not credited here.

Interest in the market during the last week of this month was confined to deliveries on contracts. In the late quotations Standard crepe, spot, sold at 2*s.* 5¼*d.*; Smoked sheet, spot, at 2*s.* 5⅜*d.* and Hard Para was firm at 2*s.* 7*d.*

SINGAPORE AND COLOMBO.

At four Singapore auctions held in April last, 632 tons were offered and 293 tons were sold. Pale crepe brought 2*s.* 4¾*d.* to 2*s.* 5¼*d.* The auction of May 11 resulted in 104 tons being sold out of 134 tons offered. Prices were higher than in April, Pale crepe bringing 2*s.* 5*d.* to 2*s.* 6⅛*d.*

The Colombo weekly auction held on May 6, brought out 143 tons and 130 tons were sold. On May 11 there were 132 tons offered and brought fair prices on a firm market. Pale crepe sold at 2*s.* 1*d.* to 2*s.* 1¼*d.*

Ocean freights on rubber have again been marked up. From Singapore to London the rate is 101*s.* 6*d.* per ton of 50 cubic feet. From Singapore to New York or Boston, direct 112*s.* and via Europe 131*s.* 6*d.* From Colombo to London the rate is 80*s.* plus 20 per cent. surcharge; to New York, 92*s.* 6*d.* plus 50 per cent. surcharge; to the Continent, 80*s.* plus 20 per cent. surcharge, and to Italian and Spanish ports, 80*s.* plus 20 surcharge.

NEW YORK QUOTATIONS.

Following are the quotations at New York one year ago, one month ago, and June 30, the current date:

PARA	July 1,'14.	June 1,'15.	June 30,'15.
Upriver, fine, new	68½@69	61 @	62½@63
Upriver, fine, old	69½@70	.....	63 @65
Islands, fine, new	58 @59	52 @	53½@54
Islands, fine, old	59 @60	.....	55 @57
Upriver, coarse, new	39½@41	46 @	45½@46
Islands, coarse, new	28 @29	28½@	28½@29
Cameta	31½@32½	32 @	31½@32
Caucho, upper	39 @40	47½@	46 @46½
Caucho, lower	36 @37	44½@	43 @44
PLANTATION HEVEA.			
Smoked sheet ribbed..57 @63		Spot 61 @ / Afloat 61 @	63 @ / 62½@63
First latex crêpe	56 @57 / 55½@56½	Spot 60½@ / Afloat 60½@	63 @ / 62½@63
Fine sheets and biscuits unsmoked	56 @57½	.....	60 @61
CENTRALS.			
Corinto	41 @42	46 @	44 @45
Esmeralda, sausage	39 @40	45 @	44 @45
Nicaragua, scrap	38 @40	.....	.....
Mexican plantation, sheet	42 @48	.....	.....
Mexican, scrap	38 @40	.....	44 @
Manicoba, scrap	.....	37 @	37 @38
Mangabeira, sheet	.....	38 @	38 @39
Guayule	25 @35	29 @	32 @34
Balata, sheet	45 @48	55 @	53 @56
Balata, block	.....	45 @	45 @47
AFRICAN.			
Lopori, ball, prime	45 @52	53 @55	54 @56
Aruwimi	35 @46	.....	.....
Upper Congo, ball red	38 @42	.....	.....
Ikelemba	35 @45	.....	.....
Sierra Leone, 1st quality	35 @40	.....	.....
Massai, red	48 @50	54 @	53 @54
Soudan Niggers	38 @40	.....	.....
Cameroon, ball	25 @35	.....	.....
Benguela	27 @32	30 @	32¾@33
Accra, flake	22½@ 23	23 @	23 @
Rio Nunez Niggers	.....	54 @	55 @56
Konakry Niggers	.....	55 @	54 @
Lagos, lump	.....	28 @29	.....
Gold Coast, lump	.....	27 @28	27 @
EAST INDIAN.			
Assam	.....	.....	48½@49
Pontianak	.....	7¼@7½	7 @ 7½
Gutta Siak	.....	.....	14 @14½

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"The same conditions have continued through June as regards commercial paper, as were reported for April and May, money being easy, the best rubber names going at 4@4½ per cent., and those not so well known 5@5½ per cent."

NEW YORK PRICES FOR MAY (NEW RUBBER).

	1915.	1914.	1913.
Upriver, fine	$0.59@0.61	$0.70@0.74	$0.81@0.92
Upriver, coarse	.45@ .46	.42@ .46	.54@ .61
Islands, fine	.52@ .54	.60@ .72	.78@ .83
Islands, coarse	.29@ .31	.29@ .32	.38@ .42
Cametá	.32@ .34	.33@ .37	.42@ .45

IMPORTS FROM PARA AT NEW YORK

[The Figures Indicate Weights in Pounds.]

MAY 17.—By the steamer *Gregory* from Iquitos *[Corrected]*:

	Fine.	Medium.	Coarse.	Caucho.	Total.
G. Amsinck & Co.	1,300	400	700	130,600=	133,000
J. T. Johnstone & Co.	1,100	400	800	60,300=	62,600
H. C. Kupper	15,100	.....	3,800	32,800=	51,700
H. A. Astlett & Co.	700	.....	300	24,900=	25,900
W. R. Grace & Co.	9,500	.....	4,600	7,800=	21,900
Total	27,700	800	10,200	256,400=	295,100

MAY 21.—By the steamer *Minas Geraes* from Para and Manàos:

Meyer & Brown	65,400	5,500	78,500	87,300=	236,700
G. Amsinck & Co.	54,400	1,400	17,100	65,800=	138,700
H. A. Astlett & Co.	.....	9,300	30,400	300=	40,000
Henderson & Korn	12,000	700	24,800	600=	38,100
J. T. Johnstone & Co.	.....	.....	.....	33,600=	33,600
Arnold & Zeiss	.....	.....	37,100	1,100=	38,200
Hagemeyer & Brunn	30,500	.....	.....	.....=	30,500
A. D. Straus & Co.	21,100	.....	.....	.....=	21,100
General Rubber Co.	.....	.....	10,400	.....=	10,400
Crossman & Sielcken	2,200	600	700	800=	4,300
W. R. Grace & Co.	2,700	.....	.....	.....=	2,700
Total	188,300	17,500	199,000	189,500=	594,300

MAY 28.—By the steamer *Stephen* from Para and Manaos:

	Fine	Medium	Coarse	Caucho	Total
Meyer & Brown	29,900	15,500	107,900	52,600=	205,900
General Rubber Co.	533,800	11,900	17,500	.....=	563,200
H. A. Astlett & Co.	21,800	12,500	24,900	36,900=	96,100
Robinson & Co.	44,400	.....	21,800	.....=	66,200
Arnold & Zeiss	27,500	1,100	15,900	100=	44,600
Henderson & Korn	4,300	2,500	31,400	1,700=	39,900
G. Amsinck & Co.	200	100	5,400	24,800=	30,500
Adolph Hirsch & Co.	.....	.....	20,900	1,300=	22,200
J. T. Johnstone & Co.	.....	.....	3,700	15,900=	19,600
Total	661,900	43,600	249,400	133,300=	1,088,200

JUNE 8.—By the steamer *Atahualpa* from Para and Manaos:

Meyer & Brown	4,900	.....	18,600	42,700=	66,200
Arnold & Zeiss	24,900	1,400	51,900	109,600=	187,800
Henderson & Korn	19,600	100	64,700	32,700=	117,100
W. R. Grace & Co.	.....	.....	.....	22,000=	22,000
Robinson & Co.	5,000	3,000	11,000	2,100=	21,100
J. T. Johnstone & Co.	.....	.....	9,700	7,300=	17,000
G. Amsinck & Co.	7,900	800	600	.....=	9,300
Total	62,300	5,300	156,500	216,400=	440,500

JUNE 8.—By the steamer *Atahualpa* from Iquitos:

G. Amsinck & Co.	3,800	.....	300	15,000=	19,100
W. R. Grace & Co.	2,800	.....	600	6,600=	64,000
J. T. Johnstone & Co.	1,700	.....	200	13,300=	15,200
Rumsey & Greutert Co., Inc.	800	.....	300	1,700=	2,800
Total	9,100	.....	1,400	90,600=	101,100

JUNE 14.—By the steamer *Alban* from Para:

Meyer & Brown	53,200	2,500	149,500	18,400=	223,600
Hagemeyer & Brunn	165,700	.....	53,100	23,200=	242,000
Arnold & Zeiss	60,700	23,600	74,300	13,800=	172,400
H. A. Astlett & Co.	53,600	.....	21,900	19,700=	95,200
Henderson & Korn	14,000	9,100	51,000	8,400=	82,500
General Rubber Co.	63,400	9,300	4,600	.....=	77,300
G. Amsinck & Co.	39,000	700	17,700	15,100=	72,500
J. T. Johnstone & Co.	11,800	6,800	.....	38,800=	57,400
Muller, Schall & Co.	23,700	.....	12,000	11,800=	47,500
Mecke & Co.	.....	.....	.....	42,200=	42,200
Neuss, Hesslein & Co.	19,700	.....	6,300	.....=	26,000
W. R. Grace & Co.	11,600	.....	3,200	.....=	14,800
Total	516,400	52,000	393,600	191,400=	1,153,400

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

		Pounds.
MAY 20.—By the *Comus*=New Orleans:		
E. Steiger & Co.		8,500
MAY 21.—By the *Van der Duyn*=Frontera:		
E. Steiger & Co.		22,000
MAY 25.—By the *Asiatic Prince*=Bahia:		
Adolph Hirsch & Co.	25,000	
J. H. Rossbach Bros. & Co.	52,000	77,000
MAY 25.—By the *Byron*=Bahia:		
Adolph Hirsch & Co.	22,500	
J. H. Rossbach Bros. & Co.	2,500	25,000
MAY 26.—By the *Guantanamo*=Mexico:		
G. Amsinck & Co.	5,000	
Pablo, Calvet & Co.	1,000	
J. S. Sembrada & Co.	500	
Harburger & Stack	3,000	
Graham, Hinkley & Co.	1,000	
H. Marquardt & Co.	1,000	
American Trading Co.	16,000	
Mexican Hardwood Lumber Co.	1,000	28,500
MAY 27.—By the *Colorado*=Galveston:		
Various		*60,000
MAY 28.—By the *Colon*=Colon:		
G. Amsinck & Co.	3,800	
J. S. Sembrada & Co.	1,100	
Pablo, Calvet & Co.	3,700	
Hermann Wolff	700	
A. M. Capen's Sons	2,200	
Andean Trading Co.	3,400	
Pottberg, Ebeling & Co.	300	
W. R. Grace & Co.	2,900	18,100
MAY 28.—By the *Van Hogendorp*=Frontera:		
Harburger & Stack	3,000	
E. Steiger & Co.	10,000	13,000
MAY 28.—By the *Carrillo*—Cartagena:		
International Banking Corporation	3,000	
Muller, Schall & Co.	500	3,500
MAY 29.—By the *Vasari*—Bahia:		
Adolph Hirsch & Co.		12,500
MAY 29.—By the *San Jacinto*=Galveston:		
Various		*67,000
JUNE 1.—By the *El Occidente*=Galveston:		
Various		*230,000
JUNE 1.—By the *Siraola*=Cartagena:		
G. Amsinck & Co.	100	
Rosenthal & Sons	300	
Eggers & Heinlein	100	500
JUNE 3.—By *El Rio*=New Orleans:		
Various		40,000
JUNE 4.—By the *Santa Marta*=Cartagena:		
De Lima, Cortissoz & Co.	2,000	
G. Amsinck & Co.	500	2,500
JUNE 4.—By *El Alba*=Galveston:		
Various		*10,000
JUNE 7.—By the *Advance*=Colon:		
G. Amsinck & Co.	16,200	
Piza, Nephews & Co.	2,500	
Meyer Hecht	1,700	20,400
JUNE 7.—By the *Morro Castle*=Mexico:		
J. A. Medina & Co.	1,800	
General Export & Commission Co.	700	
H. Marquardt & Co.	200	2,700
JUNE 7.—By *El Siglo*=Galveston:		
Various		*67,000
JUNE 7.—By the *Sibiria*=Frontera:		
E. Steiger & Co.	12,000	
General Export & Commission Co.	3,000	15,000
JUNE 8.—By the *Metapan*=Port Limon:		
Isaac Brandon & Bros.		1,000
JUNE 9.—By the *Cristobal*=Colon:		
G. Amsinck & Co.	7,600	
J. S. Sembrada & Co.	2,300	
Pablo, Calvet & Co.	2,700	
A. M. Capen's Sons	1,500	14,100
JUNE 10.—By the *Camaguey*=Mexico:		
Laurence Johnson & Co.		9,000
JUNE 10.—By the *Almirante*=Cartagena:		
G. Amsinck & Co.	3,000	
A. Held	1,500	
International Banking Corp.	6,000	10,500
JUNE 14.—By the *Pastores*=Port Limon:		
Isaac Brandon & Bros.	1,000	
G. Amsinck & Co.	200	1,200
JUNE 14.—By the *Tivives*=Port Limon:		
A. Rosenthal & Sons		500
JUNE 14.—By *El Mundo*=Galveston:		
G. Amsinck & Co.		*22,500
JUNE 18.—By the *Allianca*=Colon:		
G. Amsinck & Co.	6,300	
Charles Griffin & Co.	3,700	
Andean Trading Co.	2,900	12,900
JUNE 21.—By the *Mexico*=Mexico:		
Lawrence Johnson & Co.	9,000	
J. A. Medina & Co.	300	
General Export Commission Co.	1,000	
Diethin & Co.	600	
Diaz & Co.	1,200	12,100
JUNE 21.—By *El Sol*=Galveston:		
Various		*125,000
JUNE 21.—By the *Canova*=Bahia:		
Adolph Hirsch & Co.	215,000	
Rossbach Bros.	5,000	
Aldens' Successors, Ltd.	29,000	249,000
JUNE 22.—By the *Calamares*=Port Limon:		
Isaac Brandon & Bros.	2,000	
A. A. Linde & Co.	1,000	3,000

AFRICANS.

JUNE 1.—By the *Lapland*=Liverpool:		
Edward Maurer Co., Inc.		11,200
JUNE 1.—By the *Djember*=Lisbon:		
Edward Maurer Co., Inc.	90,000	
Robert Badenhop	22,500	
S. R. Sequerra	112,000	224,500
JUNE 2.—By the *Roma*=Lisbon:		
S. R. Sequerra		45,000

JUNE 3.—By the *Den of Airlie*=Liverpool:

Arnold & Zeiss	115,000	
Henderson & Korn	21,200	136,200

JUNE 3.—By the *Philadelphia*=Liverpool:

Aldens' Successors, Ltd.		11,200

JUNE 10.—By the *Queen Margaret*=Liverpool:

Rubber Trading Co.		22,000

JUNE 14.—By the *Cymric*=Liverpool:

Edward Maurer Co., Inc.	90,000	
Goodyear Tire & Rubber Co.	45,000	
Robinson & Co.	7,000	
The B. F. Goodrich Co.	6,000	148,000

JUNE 18.—By the *Arabic*=Liverpool:

Meyer & Brown	11,300	
Various	11,200	22,500

JUNE 21.—By the *Mississippi*=London:

Henderson & Korn		11,200

JUNE 21.—By the *Venezia*=Lisbon:

Robert Badenhop	65,000	
W. Stiles	11,200	
Edward Maurer Co., Inc.	22,500	
S. R. Sequerra	140,000	238,700

EAST INDIAN.

[*Denotes plantation rubber.]

MAY 27.—By the *Manhattan*=London:

Michelin Tire Co.	*125,000

JUNE 1.—By the *Philadelphian*=London:

Goodyear Tire & Rubber Co.	*212,000	
L. Blitz	*11,200	*223,200

JUNE 1.—By the *Lapland*=London:

Raw Products Co.	*11,200

JUNE 1.—By the *Monadnock*=London:

Meyer & Brown	*9,000	
General Rubber Co.	*22,500	
Arnold & Zeiss	*78,000	
J. T. Johnstone & Co.	*100,000	
L. Littlejohn & Co.	*220,000	
The B. F. Goodrich Co.	*220,000	
Henderson & Korn	*190,000	
Aldens' Successors, Ltd.	*6,000	
Edward Maurer Co., Inc.	*18,000	
L. Blitz	*5,600	
Rubber Trading Co.	*22,000	
Various	*95,000	*986,200

JUNE 3.—By the *Den of Airlie*=Liverpool:

The B. F. Goodrich Co.	*4,500	

JUNE 3.—By the *"Westward Ho"*=Singapore:

J. T. Johnstone & Co.	*80,000	
The B. F. Goodrich Co.	*100,000	
L. Littlejohn & Co.	*75,000	
Goodyear Tire & Rubber Co.	*8,000	*263,000

JUNE 4.—By the *Samland*=London:

Meyer & Brown	*3,600	
General Rubber Co.	*340,000	
Goodyear Tire & Rubber Co.	*295,000	
The B. F. Goodrich Co.	*260,000	
Arnold & Zeiss	*50,000	
L. Littlejohn & Co.	*13,000	
Various	*2,000	*963,600

JUNE 5.—By the *Largo Law*=London:

Meyer & Brown	*22,700	
Arnold & Zeiss	*260,000	
General Rubber Co.	*200,000	
The B. F. Goodrich Co.	*195,000	
L. Littlejohn & Co.	*480,000	
Henderson & Korn	*75,000	
Rubber Trading Co.	*22,500	
Robinson & Co.	*60,000	
Aldens' Successors, Ltd.	*30,000	
J. T. Johnstone & Co.	*30,000	
Edward Maurer Co., Inc.	*60,000	
Rumsey & Greutert Co., Inc.	*20,000	
Charles T. Wilson Co., Inc.	*170,000	
Hood Rubber Co.	*25,000	
Hadden & Co.	*15,000	
Robert Badenhop	*2,200	
Various	*240,000	*1,907,400

JUNE 7.—By the *St. Louis*=Liverpool:

General Rubber Co.	*11,200

JUNE 7.—By the *Queen Amelia*=Colombo:

Meyer & Brown	*45,000	
General Rubber Co.	*200,000	
L. Littlejohn & Co.	*59,000	
Various	*59,000	*111,000

JUNE 9.—By the *Roserie*=Colombo:

Meyer & Brown	*28,000	
General Rubber Co.	*45,000	
L. Littlejohn & Co.	*60,000	*133,000

JUNE 10.—By the *City of Delhi*=Colombo:

Meyer & Brown	*62,000	
General Rubber Co.	*125,000	
J. T. Johnstone & Co.	*70,000	
L. Littlejohn & Co.	*27,000	
Edward Maurer Co., Inc.	*17,000	
Various	*66,000	*367,000

JUNE 14.—By the *Orduna*=Liverpool:

The B. F. Goodrich Co.	*7,000

JUNE 15.—By the *Mansuri*=London:

General Rubber Co.	*180,000	
L. Littlejohn & Co.	*40,000	
Various	*40,000	*260,000

JUNE 15.—By the *Ikbal*=London:

Robinson & Co.	12,500	
Charles T. Wilson Co., Inc.	*65,000	
Robert Badenhop	*12,500	
General Rubber Co.	*625,000	
Goodyear Tire & Rubber Co.	*85,000	
L. Littlejohn & Co.	*15,862	*815,862

JUNE 17.—By the *Saxon Monarch*=London:

Meyer & Brown	*35,000	
L. Littlejohn & Co.	*11,000	
Aldens' Successors, Ltd.	*84,000	
J. T. Johnstone & Co.	*90,000	
Henderson & Korn	*67,000	
General Rubber Co.	*400,000	
The B. F. Goodrich Co.	*290,000	
Edward Maurer Co., Inc.	*25,000	
Rumsey & Greutert Co., Inc.	*4,000	
Hadden & Co.	*10,000	
Robinson & Co.	*17,000	
Arnold & Zeiss	*12,500	
Rubber Trading Co.	*50,000	
Various	*77,000	*1,172,500

JUNE 19.—By the *Radja*=Batavia:

Meyer & Brown	*2,000	
General Rubber Co.	*410,000	
Manhattan Rubber Mfg. Co.	*27,000	
Goodyear Tire & Rubber Co.	*90,000	
Aldens' Successors, Ltd.	*190,000	
J. T. Johnstone & Co.	*4,500	
Various	*458,000	*1,181,500

JUNE 21.—By the *Mississippi*=London:

Meyer & Brown	*22,700	
Charles T. Wilson Co., Inc.	*90,000	
Robert Badenhop	*1,000	
Hood Rubber Co.	*33,500	
Edward Maurer Co., Inc.	*80,000	
Robinson & Co.	*17,000	
Goodyear Tire & Rubber	*56,000	*300,200

JUNE 21.—By the *St. Stephen*=London:

Meyer & Brown	*45,000	
Aldens' Successors, Ltd.	*3,500	
Henderson & Korn	*115,000	
General Rubber Co.	*985,000	
Arnold & Zeiss	*45,000	
Robinson & Co.	*22,500	
J. T. Johnstone & Co.	*11,200	
Charles T. Wilson Co., Inc.	*2,200	
Rubber Trading Co.	*22,000	
Edward Maurer Co., Inc.	*4,500	
Various	*23,000	*1,278,900

JUNE 21.—By the *Clan McNab*=Colombo:

Meyer & Brown	*75,000	
L. Littlejohn & Co.	*97,500	
J. T. Johnstone & Co.	*6,000	
Edward Maurer Co., Inc.	*11,200	
Henderson & Korn	*45,000	
Aldens' Successors, Ltd.	*11,200	
Various	*3,800	*303,700

JUNE 21.—By the *Malang*=Somabaya:

Meyer & Brown	*50,000	
General Rubber Co.	*100,000	
Edward Maurer Co., Inc.	*40,000	
Goodyear Tire & Rubber Co.	*60,000	
J. T. Johnstone & Co.	*6,000	
Rubber Trading Co.	*22,500	
Aldens' Successors, Ltd.	*3,000	
Various	*345,100	*626,600

PARA RUBBER VIA EUROPE.

JUNE 10.—By the *Queen Margaret*=Liverpool:

Raw Products Co. (Coarse)		22,500

JUNE 11.—By the *Panama*=Colon:

Rubber & Guayule Agency, Inc. (Fine)		3,700

JUNE 11.—By the *Skogstad*=Montevideo:

Muller, Schall & Co. (Fine)	37,200	
Muller, Schall & Co. (Coarse)	300	37,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW ORLEANS—MAY, 1915.

Imports:	Pounds.	Value.
India rubber	112,317	$41,633

PORT OF CHICAGO—MAY, 1915.

Imports:		
Rubber scrap	41,344	$2,813

PORT OF SAN FRANCISCO—MAY, 1915.

Imports:		
India rubber crude	6,077	$4,177
India rubber scrap	24,120	1,056

PORT OF DETROIT—MAY, 1915.

Exports:		
Rubber scrap	2,690	$166
Rubber reclaimed	40,031	3,753

PORT OF CLEVELAND—MAY, 1915.

Imports:		
India rubber	46,213	$26,686
Scrap rubber	400	22

PORT OF BOSTON—MAY, 1915.

Imports:		
Gutta jelutong	124,266	$8,307
India rubber	426	304

PORT OF NIAGARA FALLS—MAY, 1915.

Imports:		
Rubber scrap	30,000	$2,130
Exports:		
India rubber	102,006	$45,379
Guayule	22,731	6,365

PORT OF PHILADELPHIA—MAY, 1915.

Imports:		
Rubber scrap	5,052	$369

EXPORTS OF INDIA RUBBER FROM MANAOS DURING THE MONTH OF APRIL, 1915.

EXPORTERS—	NEW YORK. Fine.	Medium.	Coarse.	Caucho.	Total.	EUROPE. Fine.	Medium.	Coarse.	Caucho.	Total.	Grand Total.
Suter & Co.	.....	.....	18,288	.....	18,288	65,972	4,916	2,324	84,449	157,661	175,949
General Rubber Co. of Brazil	103	.....	16.569	8,434	25,108	145,638	44,851	22,615	101,502	314,606	339,714
Pralow & Co.	41,216	.....	36,327	13,148	90,691	119,620	18,860	7,797	32,825	179,102	269,793
Adelbert H. Alden, Ltd.	.....	.....	.....	.....	.....	108,322	22,993	30,407	58,558	220,280	220,280
G. Fradelizi	.....	.....	32,142	.....	32,142	71,155	12,927	8,978	25,017	118,077	150,219
Tancreda, Porto & Co.	13,671	9,503	4.970	726	28,870	30.280	4,903	8,709	30,055	73,947	102,817
T. G. Araujo	.....	.....	840	.....	840	69,993	9,600	4,280	.....	83,873	84,713
B. Levy & Co.	.....	.....	.....	.....	.....	26,969	.....	.....	3,343	30.312	30.312
Amorim Irmãos	4,430	.....	3,205	.....	7,635	8,004	480	856	.....	9,340	16,975
Stowell & Sons	.....	.....	.....	.....	.....	.....	61	29	7,638	7,728	7,728
Günsburger & Co.	603	20	1,263	322	2,208	.....	.....	.....	.....	.....	2,208
Soc. An Armazens Andresen	640	.....	240	.....	880	.....	.....	.....	.....	.....	880
Mesquita & Co.	.....	.....	.....	.....	.....	350	.....	510	.....	860	860
	60,663	9,523	113,844	22,630	206.662	646,303	119,591	86,505	343,387	1,195,786	1,402,448
In transit, Iquitos	90.799	359	5,063	44,523	140.744	33,990	2,689	6,870	76,802	120,351	261,095
Total	151,464	9,882	118.907	67,153	347.406	680.293	122.280	93,375	420,189	1,316,137	1,663,543

United Kingdom.

IMPORTS OF RUBBER.

From—	Month ending May 31. 1913.	1914.	1915.	Five months ending May 31. 1913.	1914.	1915.
Dutch East Indies.....*tons*	....	....	257	....	....	970
French West Africa.....	127	32	39	681	192	207
Gold Coast	115	18	69	512	168	125
Other Countries in Africa.....	....	....	109	....	....	1,033
Peru	88	118	105	566	408	454
Brazil	1,933	1,305	1,801	9,720	7,645	6,551
British India	....	....	44	....	....	736
Straits Settlements and Dependencies, including Labuan.....	1,145	1,515	2,127	6,001	8,144	14,914
Federated Malay States.....	831	591	1,030	4,040	4,515	5,404
Ceylon and Dependencies.....	289	481	666	2,372	3,136	7,280
Other Countries	1,587	1,180	134	7,829	6,931	775
Total	6,115	5,240	6,381	31,721	31,139	38,449
*Waste and Reclaimed.....	....	....	185	....	....	567
Total	....	....	6,566	....	....	39,016
Gutta Percha	429	201	331	2,031	1,216	1,478

EXPORTS OF RUBBER.

To—						
Russia .....*tons*	633	907	2,371	3,022	3,477	4,572
Germany	1,073	1,166	....	4,679	4,511	....
Belgium	164	169	....	833	1.011	....
France	438	707	733	1,988	2,915	2,811
United States	1,361	2,709	4,001	6,550	11,091	18,688
Other Countries	411	294	764	1,590	1,721	3,626
Total	4,080	5,952	7,869	18,662	24,726	29,697
*Waste and Reclaimed.....	....	....	32	....	....	102
Total	....	....	7,901	....	....	29,799
Gutta Percha	52	12	54	201	161	169

*Included in "Rubber" prior to 1915.

Plantation Rubber From the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

(From January 1 to May 17, 1914 and 1915. Compiled by the Ceylon Chamber of Commerce.)

To—	1914.	1915.
Great Britain .....*pounds*	6,041,603	10,077,699
United States	3,321,834	4,234,850
Belgium	1,946,292	.....
Germany	667,047	.....
Japan	152,511	164,479
France	98,873	150,080
Russia	98,482	287,650
Australia	44,423	144,358
Straits Settlements	35,852	116,056
India	500	500
Canada and Newfoundland.....	.....	340,140
Total	12,407,417	15,515,812

(Same period 1913, 8,083,692 pounds; same period 1912, 4,077,628.)

The export figures of rubber given in the above table for 1914 include the imports re-exported. (These amount to 1,563,077 pounds.) To arrive at the total quantity of Ceylon rubber exported for that period deduct these imports from the total exports. The figures for 1915 and 1912 are for Ceylon rubber only.

TOTAL EXPORTS FROM MALAYA.

(From January to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.)

To—	Singapore. March 21.	Malacca. April 30.	Penang. March 31.	Port Swettenham. April 15.	Total.
Great Britain..*pounds*	10,903,945	3,276,002	6,668,532	9,313,019	30,161,498
Continent	1,379,457	.....	149,999	11,200	1,540,656
Japan	80,659	.....	.....	.....	80,659
Ceylon	47,523	.....	118,133	511,884	677,540
United States	2,976,533	.....	110,000	.....	3,086,533
Australia	129,960	.....	.....	.....	129,960
Total	15,518,077	3,276,002	7,046,664	9,836,103	35,676,846
Total, 1914.....	8,757,515	1,772,527	5,398,000	8,733,149	24,661,191
Total, 1913.....	5,376,298	.....	3,503,067	8,552,277	17,431,642
Total, 1912.....	2,968,545	.....	2,434,719	4,753,493	10,156,757

SINGAPORE.

Guthrie & Co., Ltd., report [May 11, 1915]:

Yesterday's advices from London indicated a better demand in the rubber market and this was reflected at the association auction held today, prices generally being better on the week.

Fine ribbed smoked sheet and fine pale crepe were both in good demand. For one or two lots of both grades quite exceptional prices were obtained but on the average there was an improvement of about $5 per picul. Unsmoked sheet was also wanted, but here, too, values were most erratic. Brown and dark crepes moved off freely at an advance of about $4 per picul, but barky crepes were practically unchanged.

Virgin scrap showed no change from last week but loose scrap improved considerably.

Of 134 tons offered 104 tons changed hands.

The following was the course of values:

	In Singapore, Picul.*	Sterling equivalent per pound in London.	Equivalent per pound in cents.
Sheet, fine ribbed smoked...	$127@134	2/ 5 @2/ 6¼	58.79@61.57
Sheet, fair to good ribbed smoked	120@124	2/ 3½@2/ 4¼	55.75@57.27
Sheet, plain smoked.....	111@127	2/ 1½@2/ 5	51.70@58.79
Sheet, unsmoked	108@125	2/ 1 @2/ 4½	50.68@57.77
Crepe, fine pale.....	127@134	2/ 5 @2/ 6¾	58.79@61.57
Crepe, good pale.....	122@126	2/ 3⅞@2/ 4¾	56.50@58.28
Crepe, fine brown.....	115@120	2/ 2¾@2/ 3½	53.46@55.75
Crepe, good brown.....	111@119	2/ 1½@2/ 3¼	50.93@55.24
Crepe, dark	100@109	1/11¼@2/ 1⅛	47.13@50.93
Crepe, bark	95@105	1/10¼@2/ 0¼	45.10@49.16
Scrap, virgin	88@ 96	1/ 8¾@1/10¾	42.06@45.35
Scrap, loose	79@ 91	1/ 6¾@1/ 9⅛	38.26@43.33

*Picul. = 133⅓ pounds.

Quoted in S. S. dollars = 2/4 [56 cents].

THE RUBBER SCRAP MARKET.

A VERY quiet market and easy prices ruled in the rubber waste trade in June. Conservative buying was confined to small lots, and attractive prices on large lots failed to interest the consumers. The mills appeared to be holding off and waiting developments. Boots and shoes were easier and offers at 7¼ cents, delivered, were made to the mills. There was no change in auto. tires. A few sales of Goodrich and Goodyear white tires were reported at 6¼ cents delivered. Manufacturers report a good demand for rubber goods and this should have a favorable influence on the scrap market. The fact that there is an ample supply of crude rubber, doubtless explains the present stagnation.

The demand continues to be wholly routine with the market quiet and prices steady. Imports of foreign scrap are small in volume and the mills are only taking enough for their immediate needs. The following imports were received at the port of New York during the month: June 1, by the steamship "Saratoga" from Havana, 15 packages consigned to the American Trading Co., and 29 packages for Yglesias, Lobo & Co.; June 4, by the "Egbert" from Hongkong, 112 barrels for Muller, Schall & Co.; by the "Samland," 22 bags consigned to the British Consul; June 6, by the "Largo Law" from London, 22 bags consigned to the British Consul; by the "Maracaibo" from Guayra, 18 barrels for DeSola Brothers & Pardo; June 7, by the "Advance," from Panama, 6 barrels for Pottberg, Ebeling & Co.; June 21, by the "Steven," from London, 31 packages and 18 bags consigned to the Guaranty Trust Co.; June 23, by the "Havana," from Havana, 27 packages for Yglesias Lobo & Co.

PRICES PAID BY CONSUMERS FOR CARLOAD LOTS.

New York, June 25, 1915.

	Per Pound.
Boots and shoes.....*cents*	7½@ 7¾
White Goodrich and Goodyear tires.....	6½@ 6¾
Morgan & Wright and U. S. tires.....	5½@ 5¾
Trimmed arctics	6 @ 6¼
Auto tires, mixed.....	4¾@ 5
Solid tires	4⅜@ 4½
No. 1 inner tubes.....	25 @25½
No. 2 inner tubes.....	11½@
Red tubes	13 @13½
Bicycle tires	3 @ 3⅛
Irony tires	1¾@ 2¼
No. 1 auto peelings.....	8 @ 8½
Mixed auto peelings	6¾@ 7
No. 1 soft white rubber.....	11 @12
White wringer rubber.....	9¼@ 9½
No. 1 red scrap.....	10 @10¼
Mixed red scrap.....	7¼@ 7½
Mixed black scrap.....	2½@ 2¾
Rubber car springs.....	3¼@
Horse shoe pads.....	3 @ 3¼
Matting and packing	½@ ¾
Garden hose	¾@ ⅞
Air brake hose.....	4½@ 4½
Cotton fire hose.....	1¾@ 2

CANADIAN MARKET.

The market has been generally quiet and trading restricted to small lots of shoes and special tires. There has not been enough consistent buying to materially change prices. In shipping carload lots of rubber scrap from Canada to the United States, special permits are issued by the Commissioner of Customs at Ottawa and the goods are consigned to the British Consul, who releases them at their destination upon filing of the customary rubber guarantees. The Rubber Club of America, Inc., attends to these details, making a charge of 50 cents a ton, which is paid by the consumer.

INDIA RUBBER WORLD
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The variety of materials used in the preparation of rubber and the production of rubber goods is evidenced by the statement recently made by William H. Scheel, of 159 Maiden Lane, New York, dealer in rubber workers' supplies, that he is prepared to supply practically 200 products suitable for this purpose.

AN UNFORTUNATE MISAPPREHENSION.

TO the Editor of THE INDIA RUBBER WORLD:

I am writing you today to call your attention to an article which is going the rounds of the German press, namely, that the Rubber Club of America has come out with a circular in which they inform those interested in the branch that goods for Germany will not be exported, calling attention to the fact that goods will be taken for transportation to Great Britain.

The matter is very plain to us, but is being wrongly construed by the German press, which argues that this export has been forbidden to Germany, but not to England. The situation is very simple, although in reality very complicated, as all goods sent to Germany, or addressed to German firms, or even to American firms in Germany (we greatly regret to say) are confiscated by the British government, and not allowed to reach their destination.

We should feel under great obligation to you would you look into this matter and see if it cannot be straightened out, so as not to give the impression that American firms do not wish to send goods to Germany, but will send them to England.

We trust you will continue to send us THE INDIA RUBBER WORLD regularly, as our second-class matter reaches us more promptly than first-class matter, which latter is always subject to a delay.

Very sincerely yours, GEO. S. ATWOOD,
Secretary, American Association of Commerce and Trade.
Berlin, Germany, May 25, 1915.

[It is obvious from the letter printed above that the German press entirely misapprehends the rubber situation in the United States. This matter has been explained several times in these columns and particularly in the editorial that appeared in the May issue. The British Government put an embargo on rubber from the English plantations in the East. American manufacturers needed this rubber and in order to obtain it agreed to the terms of the British Government, namely—that if shipments of plantation rubber from London to American ports were resumed, none of it, either in its crude or manufactured form, should be permitted to reach the enemies of the Allies. This agreement was entered into by the American manufacturers as being the only way in which they could secure the necessary supply of rubber. It indicates no feeling in any direction, either of friendliness for England or unfriendliness for Germany.—Editor.]

RECENT CUSTOMS RULINGS.

The protest by the Max Frankel Co., against a 50 per cent. assessment on bottle stoppers composed of china and rubber as being chiefly of china, has been sustained, and these articles have been declared dutiable at 10 per cent., as manufactures in chief value of rubber.

The B. F. Goodrich Co. has also been sustained in its protest against a 15 per cent. assessment on heavy wire forms, and by the decision of the Board of General Appraisers these have been allowed free entry, as wire staples.

TO DISTRIBUTE AMERICAN RUBBER GOODS IN BELGIUM.

An organization of Belgian business men has been created for the purpose of introducing into Belgium, as soon as the war is over, all kinds of American products and manufactures. There is a secondary object in this organization, namely, to find employment as agents and distributors of American goods for a large number of Belgian manufacturers and business men who have been financially ruined or at least very seriously embarrassed by the war. Mr. Willy Lamot, Shardhighs, Halstead (Essex), England, is acting as secretary for this organization.